CHAPTER 3 INVENTORY AND SENSITIVITY ANALYSIS

3.1 INTRODUCTION

This chapter presents the results of the resource inventories that were compiled and sensitivity analysis that was conducted for this study. The inventory results were used as the basis for the sensitivity analyses and the identification of opportunity and constraint areas for each of the project segments. Sensitivity levels are designated as exclusion, high, moderate and low and are defined in Chapter 2, Section 2.5.

The remainder of this chapter presents a description of inventories and results of the sensitivity analyses by individual resource area for the resource areas listed below:

- Land Use Resources
- Visual Resources
- Cultural Resources
- Biological Resources
- Water Resources and Wetlands
- Engineering Constraints and Geohazards

3.2 LAND USE RESOURCES

This section summarizes land use resources by segment.

3.2.1 Resource Inventory

Montana

Land Jurisdiction

The study area encompasses approximately 13,724 square miles in Montana. Generally, a third of the study area is in private ownership. The rest is primarily publicly owned and managed by either the BLM, Forest Service, National Park Service, Montana Fish, Wildlife and Parks, Montana Department of Transportation, Department of Natural Resources and Conservation and various local governments. Major incorporated cities within the study area include Bozeman and Butte.

Existing Land Use

Existing land uses within the study area are diverse, ranging from residential development, mineral extraction, timber harvesting, agriculture (farming and ranching), wildlife habitat, recreation, and tourism. Residences are dispersed throughout the study area, but are present in greater concentrations along major transportation routes. Mining claims are also scattered throughout much of the study area. Agriculture includes irrigated and partially irrigated croplands (hay, potatoes, barley, and wheat) generally located in the valleys. Pasture also exists in river and stream bottoms. A large number of range acreage provides forage for cattle and sheep. Recreational activities include camping, picnicking, hiking, fishing and OHVs in the summer; hunting in the fall; and snowmobile and cross-country skiing in the winter. State trust lands in the study area are generally available for mineral and agricultural leasing, and public recreation.

Other land uses within the study area includes commercial, industrial, public and institutional uses, military facilities, communication sites, and airports. Most commercial and industrial development in the study area can be found in or around cities and towns or near the on/off ramps of Interstate 15 and state highways. The Montana State Prison is located in the Deer Lodge valley approximately 3.5 miles west of Deer Lodge. The institution is designated to maintain a population of 1300 adult male offenders. Outside the fenced perimeter is a 80 bed Work Dorm that houses inmates that work on a 35,000 acre ranch and dairy program.

Military facilities identified in the study area include the Montana Army National Guard Limestone Hills Training Area. The Montana Army National Guard has trained at Limestone Hills since 1959 under a Special Use Permit from the Bureau of Land Management and special arrangements with the State of Montana and a few private landholders. The site is used for maneuver and live fire training for infantry, armor, artillery, engineer, aviation, and special operations units.

Approximately 6,000 acres are closed to the public due to the potential for unexploded ordnance (UXO). The actual area with UXO is much smaller, but the closure was expanded to include all vehicle access points to the area. Limestone Hills Training Area comprises approximately 20,000 acres on the east slopes of the Elkhorn Mountains, about 30 miles southeast of Helena, Montana. The Montana Guard, in cooperation with the U.S. Bureau of Land Management (BLM) is currently developing an application to temporarily withdraw the LHTA from administrative jurisdiction of the Department of Interior to that of the Montana Guard. The Montana Guard has initiated an environmental impact analysis to evaluate the impacts of the withdrawal. Thirty six airports registered with the Federal Aviation Administration were identified in the study area (see Table 3.2-1 below).

Concentrations of subdivided lands and occur throughout the study area, but area most heavily concentrated in the valleys, and are located in and around Butte and Anaconda, the Madison Valley and Ennis, and Dillon. The highest concentrations occur in the eastern portion of the study area in and around Bozeman.

Linear Facilities

Major linear features identified within the study area include electrical transmission lines, railroads and various roadways. Northwestern Energy, Bonneville Power Administration, and Idaho Power Company currently own and operate several transmission lines of various voltages in the study area.

Four railroads (Union Pacific Railroad, Montana Rail Link, Montana Western Railway, and Rarus Railway), were located within the study area. Union Pacific Railroad, a Class I Railroad, has 125.21 route-miles of single track in Montana. This is part of Union Pacific Railroad's Montana Subdivision, the rail line connecting Pocatello and Idaho Falls, Idaho, with Silver Bow, a railroad location on the Montana Western Railway near Butte. There are three daily trains between Monida and Silver Bow; one is a local, the other two are through freight. Between Dillon and Silver Bow, there are two trains per day, working as locals. The Union Pacific Railroad interchanges at Silver Bow with Montana Western Railway and Rarus Railway.

Montana Rail Link, a Regional Railroad, operates 812 route-miles in Montana. Five-hundred fifty-seven miles are main line track; 255 miles are branch line. Of the 812 route-miles, 191 miles are owned by Montana Rail Link and the remainder is leased. Fifteen miles of main line right-of-way are double-tracked. The Montana Rail Link leases railroad track from the Burlington Northern Santa Fe Railway. The Montana Rail Link is a regional Class II railroad serving more than 100 stations in Montana, Idaho and Washington. The main railroad is situated in a major utility corridor containing Interstate 90, Montana Route 205 (frontage road) and the Trident-Belgrade 50kV transmission line.

Rarus Railway, a Local Railroad, operates over 25.7 route-miles of single main line track between Butte and Anaconda. In addition, there is a 4.7 mile quarry line (Brown Spur) west of Anaconda. At Butte, Rarus Railway connects with the Montana Western Railway; at Silver Bow, Rarus Railway connects with the Montana Western Railway and the Union Pacific Railroad.

Table 3.2-1. Federal Aviation Administration Registered Airports located within the Study Area (Montana)

Type	County	City	Facility Name	Use
Airport	Deer Lodge	Anaconda	Bowman Field	Public
Airport	Gallatin	Belgrade	Kreikemeier	Private
Heliport	Gallatin	Belgrade	Krinitt Helicopters	Private
Airport	Gallatin	Belgrade	Mckenna	Private
Airport	Gallatin	Belgrade	Thompson Field	Private
Airport	Jefferson	Boulder	Boulder	Public
Heliport	Gallatin	Bozeman	Bozeman Deaconess Hospital	Private
Airport	Gallatin	Bozeman	Briar Creek	Private
Airport	Gallatin	Bozeman	Edsall Field	Private
Airport	Gallatin	Bozeman	Gallatin Field	Public
Airport	Gallatin	Bozeman	Haggerty	Private
Airport	Gallatin	Bozeman	Monger	Private
Airport	Gallatin	Bozeman	Waterfall	Private
Airport	Silver Bow	Butte	Bert Mooney	Public
Heliport	Silver Bow	Butte	Butte Aero	Public
Airport	Silver Bow	Butte	Flying Arrow Ranch	Private
Airport	Silver Bow	Butte	Smith Field	Private
Heliport	Silver Bow	Butte	St. James	Private
Airport	Powell	Deer Lodge	Deer Lodge-City-County	Public
Airport	Powell	Deer Lodge	Larner Field	Private
Airport	Beaverhead	Dell	Dell Flight Strip	Public
Airport	Beaverhead	Dillon	Dillon	Public
Airport	Madison	Ennis	Ennis – Big Sky	Public
Airport	Madison	Ennis	Sportsmans Field	Private
Airport	Beaverhead	Jackson	Fish Ranch	Private
Airport	Beaverhead	Lakeview	Lakeview	Private
Airport	Beaverhead	Lakeview	Metzel Creek	Private
Airport	Madison	Sheridan	Tezak's-Colterville-Spur	Private
Stolport	Gallatin	Three Forks	Hasskamp	Private
Airport	Gallatin	Three Forks	Three Forks	Public
Airport	Madison	Twin Bridges	Twin Bridges	Public
Airport	Jefferson	Whitehall	Jefco Skypark	Private
Airport	Park	Wilsall	Wilsall	Public
Airport	Beaverhead	Wisdom	Wisdom	Public
Airport	Silver Bow	Wise River	Jerry Creek	Private
Airport	Beaverhead	Wise River	Wise River	Public

The Montana Western Railway, a Local Railroad, operates 58.59 route-miles, seven miles of which is considered branch line and the remainder main line. The 51.59-mile main line connects Butte and Garrison. The 7-mile branch line connects Butte with South Butte.

Highways and roads include interstate highways (I 15, I 90) U.S. highways (US 191, US 287), state highways (S1, S2, S41, S43, S69, S84, S85, S87, S278, S287 and S324), Forest Service and BLM roads, as well as local roads. Forest Service and BLM roads provide public access to and across lands managed by the federal agencies and serve the needs of recreation and commerce.

Planned Land Use

Agency designated or proposed utility/energy corridors within the study area are found in Tables 3.2-2 and 3.2-3.

Table 3.2-2. BLM Existing and Proposed/Potential Utility Corridors within the Study Area (Montana)

Field Office	RMP	Designated Utility Corridor(s) Yes/No	West-Wide Energy Corridor PEIS Preliminary Energy Corridor(s) Yes/No
Butte	Headwaters RMP (1984) Butte RMP **Revision** (Ongoing)	Yes[1]	Yes (within field office boundary)
Dillon	Dillon RMP (2006)	Yes[2]	Yes (within field office boundary)
Missoula	Garnet RMP (1986)	No[3]	No (not within field office boundary)
Lewistown	Headwaters RMP	Yes[1] – See above.	No (not within field office boundary)

[1] There is only one designated utility corridor in the Headwaters RMP, the Colstrip twin 500kV transmission line from Townsend to Garrison. Due to the constraints of topography within this corridor, it is doubtful that it will be used in its entirety for additional facilities. Public land within identified exclusion areas will not be available for utility and transportation corridor development, Public land along the Rocky Mountain Front will continue to be managed as an avoidance area. Public land within avoidance areas generally will not be available for utility and transportation corridor development. Exceptions may be permitted based on consideration of the following criteria: type of and need for facility proposed; conflicts with other resource values and uses, including potential values and uses; and availability of alternatives and/or mitigation measures. Public land within identified windows is available for utility and transportation corridor development. All other public land generally is available for utility and transportation corridor development. Exceptions will be based on consideration of the criteria identified above. Applicants will be encouraged to locate new facilities within existing corridors.
Avoidance areas will be established in the Scratchgravel Hills, Limestone Hills, and Sleeping Giant areas, and along the Smith River, Jefferson River and the Missouri River from Three Forks to Holter Dam. Windows will be established where major facilities cross avoidance areas. All other public land in the resource area will be managed as stated above.

[2] Manage two of the existing right-of-way corridors delineated in the 1992 "Western Regional Corridor Study" as designated right-of-way corridors where they cross public lands. These corridors are each currently occupied by an electrical transmission line. Nominal corridor width will be 1,320 feet (1/4 mile) on each side of centerline of the existing facilities, except where the alignment forms the boundary of a Special Management Area, where the width will be 2,640 feet (1/2 mile) on the side opposite that boundary. Applicants for electrical transmission lines 69 kV and larger and pipelines 10 inches in diameter and greater will be encouraged to locate such facilities within these two designate corridors.

[3] Public land within identified exclusion areas will not be available for utility and transportation corridor development. Public land within avoidance areas ordinarily will not be available for utility and transportation corridor development. Exceptions may be permitted based on type of and need for facility proposed; conflicts with other resource values and uses, including potential values and used; and availability of alternatives and/or mitigating measures. All other public land usually is available for development of utility and transportation corridors. Exceptions will be based on consideration of the criteria identified above.

Table 3.2-3. Forest Service Existing and Proposed/Potential Utility Corridors within the Study Area (Montana)

State	National Forest	FP/LRMP	Designated Utility Corridor(s) Yes/No	West-Wide Energy Corridor PEIS Preliminary Energy Corridor(s) Yes/No
Montana	Beaverhead-Deerlodge	Beaverhead Forest Plan (1986) Deerlodge Forest Plan (1987) Beaverhead-Deerlodge National Forest Land and Resource Management Plan **Revision**	No – Prior to construction of a utility line or oil and gas pipeline, an appropriate analysis would be required to establish the final location of the facility and its supporting road. No[1] Yes[2]	Yes - (within National Forest boundary)
	Gallatin	Gallatin Forest Plan (1987)	No – Applications for utility corridors will be evaluated on a case-by-case basis.	No (not within National Forest boundary)
	Helena	Helena Forest Plan (1986)	No	No (not within National Forest boundary)

[1]Provides that existing corridors will be identified as a separate management area. Establishes a classification system for Forest land suitability for utility corridors. Some areas, such as wilderness, will be barred from consideration. Other areas are to be avoided if at all possible, but may be used If no other options are available. These avoidance areas include riparian areas or campgrounds. Identifies one site on the as a "window" (i.e., an acceptable mountain range crossing) However, this "window" lies within the Sapphire Wilderness Study Area and is unavailable at this time.
[2] Utility Corridors and Communication Sites – Provide an effective network of designated utility corridors and communication sites to minimize the proliferation of rights-of-way, facilities, and corridors across the landscape. Effectively accommodate current and expected energy transmission and communication needs that cannot be accommodated on other land ownerships.
Standard: New energy transmission or wireless communication facilities shall only be located in utility corridors or communication sites designated on the Utility and Corridor Maps.

Each designated corridor has the capacity to accommodate least one new utility. Corridors are designated in the Forest Plan for transmission facilities. They do not supply local distributors. Transmission facilities are generally cross-county power lines (larger than 66 kilovolts), fiber optic lines, and pipelines. They also do not serve local end-users and are normally located along existing road systems or other previously disturbed areas in order to minimize environmental impacts. Presently, there are 5 designated utility corridors on the Forest. Three of these were also identified by the Western Utility Group (WUG) as priority utility corridors in their latest update (2003). WUG listed these as Priority 2 because expansion may be needed in 3-5 years. The other 2 were identified by the Forest as corridors where expansion could be allowed. Other existing rights-of-way occupied by utilities, are not designated as corridors because expansion will not be encouraged.

County utility corridor comprehensive plan/growth policies and applicable discussions thereof are presented below in Table 3.2-4.

Table 3.2-4. County Utility Corridor Comprehensive Plan/Growth Policies within the Study Area (Montana)

County	Comprehensive Plan/Growth Policy Yes No	Utility Corridor Comprehensive Plan/Growth Policy Yes No*
Montana		
Beaverhead	Yes - Beaverhead County Growth Policy (2005)	No
Deer Lodge	Yes – Anaconda-Deerlodge County Growth Policy (2005)	Yes – Encourage the use of existing utility corridors.
Powell	Yes – Powell County Growth Policy (2006)	No
Silver Bow	Yes – Butte-Silver Bow Comprehensive Master Plan (1995)	No
Broadwater	Yes – Broadwater County Growth Policy (2003)	No
Gallatin	Yes – Gallatin County Growth Policy (2003)	No
Jefferson	Yes – Jefferson County Growth Policy (2003)	No
Madison	Yes - Madison County Comprehensive Plan, 1999 Update	No – Provide that transportation and utility improvements will be made in a manner that maintains and supports, and does not negatively impact, the viability of agriculture.
Meagher	Yes – Meagher County Growth Policy (2003)	No
Park	Yes – Park County Growth Policy (2006)	No

*Utility discussion provided, where appropriate.

Parks, Recreation, and Preservation Areas

The study area contains a number of recreational opportunities that vary with seasonal changes. Spring and summer provide opportunities for fishing, hiking, photography, horseback riding, wildlife viewing, spring hunting, water sports (powered and non-powered), off-road vehicle activities, camping, picnicking, and touring (vehicle and bicycle). Winter brings the winter sports of skiing, snowshoeing, snowboarding, and snowmobiling. There are three National Forests in the study area: Beaverhead-Deerlodge, Helena, and Gallatin. These forests provide a variety of yearlong, outdoor recreation.

The BLM also has land holdings in the study area. The majority of this land is not contiguous; it is fragmented and many times isolated by private holdings. Most of this land is managed for multiple use. Recreational opportunities include hiking, horseback riding, off-road vehicle travel, fishing, hunting, wildlife viewing, camping, picnicking, skiing, and snowshoeing.

State parks within the study area also offer outdoor activities such as Native American history, geological sites, wildlife preserves, water sports, photography, hiking, camping, and fishing. State Wildlife Management Areas and Fishing Access Sites are also found within the study area.

In addition, state-owned lands checkerboard the study area. Much of this land is surrounded by private or federal land. Recreational opportunities include hunting, fishing, wildlife viewing, hiking, snowmobiling, and skiing. Navigable waterways and islands owned by the state also provide additional recreational opportunities.

Some municipalities offer museums, parks, baseball fields, rodeo grounds/fairgrounds, walking/hiking/bicycle trails, water sports, outdoor sports activities at schools, and other opportunities.

In addition to public lands, recreational opportunities exist on privately owned lands, including private campgrounds, resorts, and dude ranches. Activities such as hunting and backcountry trips also may be permitted on privately owned land with landowner consent. Recreational opportunities also arise on private lands as a result of Montana FWP actions, such as hunting opportunities through the block management program and conservation easements.

Special Management Area Designations

These designations are intended to enhance or protect specific qualities over time, and to feature recreation opportunities, ecosystem protection, or historic preservation. Some special designations are made only by Congress. Other designations, such as Research Natural Areas are made by agencies. Once a designation is in place it does not usually change. Allocations are more temporary in nature. Recommended Wilderness is a Forest Plan allocation with local direction.

Wilderness Area

An area of federal land designated by the United States Congress and defined by the Wilderness Act of 1964 as a place "where the earth and its community of life are untrammeled by man, where man himself is a visitor who does not remain." Designation is aimed at ensuring that these lands are preserved and protected in their natural condition. Wilderness areas, which are generally at least 5,000 acres or more in size, offer outstanding opportunities for solitude or a primitive and unconfined type of recreation; such areas may also contain ecological, geological, or other features that have scientific, scenic, or historical value.

Two wilderness areas (Lee Metcalf Wilderness – Bear Trap Unit and Red Rock Lakes National Wildlife Wilderness) are located in the study area.

Created by an act of Congress in 1983, the Lee Metcalf Wilderness is in four separate parcels. The Bear Trap Canyon unit is managed by the BLM and comprises a region of canyonlands adjacent to the Madison River. Bear Trap Canyon is the first designated wilderness area to be managed by the BLM. The Red Rock Lakes National Wildlife Refuge is discussed in greater detail under *National Wildlife Refuge*.

Recommended Wilderness

When revising forest plans, national forests are required to evaluate Inventoried Roadless Areas to assess their wilderness characteristics, and to make recommendations to Congress regarding areas suitable for inclusion into the National Wilderness Preservation System. Through the Wilderness Act of 1964 (PL 88-577), Congress created the National Wilderness Preservation System (NWPS or Wilderness System) to provide protection for lands relatively untouched by human activity. Under this Act, the Department of Agriculture is directed to recommend "primitive" areas suitable for addition to NWPS.

The Forest Service can only recommend wilderness allocations to Congress via forest plans and only Congress can designate wilderness through the legislative process. Recommendations and designation are often very controversial, and Congress may defer the issue for many years before taking action. In the interim, the Forest Service shall manage any IRAs recommended for wilderness through Forest Plan direction that will protect their wilderness characteristics and values, and potential for inclusion into NWPS.

Three areas were recommended for wilderness designation within the study area. All three of these areas are located in the Beaverhead-Deerlodge National Forest.

Wilderness Study Area (WSA)

An area designated by a federal agency as having wilderness characteristics, thus making it worthy of consideration by congress for wilderness designation. While congress considers whether to designated a WSA as a permanent wilderness, the federal agency managing the WSA does so in a manner as to prevent impairment of the area's suitability for wilderness designation.

The following thirteen BLM WSAs were identified in the study area: Black Sage WSA, Ruby Mountains WSA, Blacktail Mountains WSA, East Fork Blacktail Deer Creek WSA, Hidden Pasture Creek WSA, Bell/Limekiln Canyons WSA, Henneberry Ridge WSA, Axoloti Lakes WSA, Farlin Creek WSA, Tobacco Root Tack-ons WSA, Centennial Mountains WSA, Pioneers WSA, and Humbug Spires WSA. Humbug Spires was also designated as a Primitive Area in 1982.

BLM Area of Critical Environmental Concern (ACEC)

Areas within the public lands where special management attention is required to: (1) protect and prevent irreparable damage to important historic, cultural, or scenic values, fish and wildlife resources, or other natural systems or processes, or (2) protect life and safety from natural hazards. BLM ACECs within the study area are described in Table 3.2-5.

National Wildlife Refuge (NWR)

The National Wildlife Refuge system is a network of lands and waters managed to protect wildlife and wildlife habitat.

The Red Rock Lakes National Wildlife National Wildlife Refuge is located within the study area. Red Rock Lakes NWR is primarily a high elevation mountain wetland-riparian area. Red Rock Lakes National Wildlife Refuge was established in 1935 to protect the rare trumpeter swan. Today, the Refuge continues to be one of the most important habitats in North America for these birds. Red Rock Creek is near the headwaters of the Missouri River. These wetlands provide secluded habitat for the trumpeter swan, white-faced ibis, and Shiras moose. The Refuge includes sub-irrigated meadows or "fens", grasslands, and forest as well.

This minimally-altered natural diversity provides habitat for other species such as sandhill cranes, curlews, peregrine falcons, eagles, numerous hawks and owls, badgers, wolverines, bears, and wolves (in the backcountry), native fish such as Arctic grayling and west slope cutthroat trout, moose, and pronghorn antelope. Refuge management has restored much of the naturalness to the area. This approach gained Red Rock Lakes the distinction of being designated a National Natural Landmark, as well as becoming one of the few marshland Wilderness Areas in the country.

National Historic Site

Usually, a national historic site contains a single historical feature that was directly associated with its subject. Derived from the Historic Sites Act of 1935, a number of historic sites were established by secretaries of the Interior, but most have been authorized by acts of Congress.

The Grant-Kohrs Ranch National Historic Site is located in the study area. Once the headquarters of a 10 million acre cattle empire, the Grant-Kohrs Ranch National Historic Site is a working cattle ranch that preserves these symbols and commemorates the role of cattlemen in American history.

National Battlefield

This general title includes national battlefield, national battlefield park, national battlefield site, and national military park. In 1958, an NPS committee recommended national battlefield as the single title for all such park lands.

Within the study area, Big Hole National Battlefield is located 10 miles west of Wisdom, Montana, on Montana Highway 43. This 655-acre site is managed by the National Park Service. This National Park System unit encompasses most of the principal features of the battlefield.

Inventoried Roadless Areas

Any, typically undeveloped areas exceeding 5,000 acres, that met the minimum criteria for wilderness consideration under the Wilderness Act when inventoried during the Forest Service's Roadless Area Review and Evaluation (RARE II) process, subsequent assessments, or Forest planning. These areas meet the definition of roadless prescribed in FSH 1909.12 which specifies the areas "do not contain improved roads maintained for travel by standard passenger type vehicles."

Table 3.2-5. BLM ACECs within the Study Area (Montana)

Field Office	ACEC Name	Designation Date	Size (Acres)	Reason for Designation	Land Use Plan(s)
Dillon	Beaverhead Rock*	2/7/06	120	Historic petroglyphs mentioned in the journals of Lewis and Clark	Dillon RMP
Dillon	Block Mountain	2/7/06	8,661	Exceptional fold and thrust belt structures for teaching geological field mapping	Dillon RMP
Dillon	Blue Lake	2/7/06	430	Azoloti is a neotenic form of tiger salamander that retains gills and an aquatic lifestyle from living in a cold environment with no fish	Dillon RMP
Dillon	Centennial Mountains	2/7/06	40,715	Habitat for grizzly bear, lynx, and wolf; use as a wildlife migration area; outstanding scenic value; and only occurrence in Montana of Whipple's beardtongue	Dillon RMP
Dillon	Centennial Sandhills	2/7/06	1,040	Contains one of only two sand dunes in Montana and habitat for special status plant species	Dillon RMP
Dillon	Everson Creek	2/7/06	8,608	One of the oldest archaeological sites in Montana-cultural chert quarry and workshop sites	Dillon RMP
Dillon	Muddy Creek/Big Sheep Creek	2/7/06	22,826	Scenic and cultural resource values including pictograph and rock sites	Dillon RMP
Dillon	Virginia City Historic District	2/7/06	513	Historic properties for mining and settlement of Virginia City	Dillon RMP

*Does not allow new rights of way.

The following Inventoried Roadless Areas, by National Forest, were identified in the study area:

Beaverhead National Forest

Anderson Mountain
Basin Creek
Beaver Lake
Big Horn Mountain
Black Butte
Call Mountain
Cattle Gulch
Cherry Lakes
Dixon Mountian
East Pioneer
Electric Peak
Fleecer
Flint Range/Dolus Lakes
Four Eyes Canyon
Freezeout Mountain
Garfield Mountain
Goat Mountain
Granulated Mountain
Highlands
Italian Peak
Lone Butte
Mckenzie Canyon
Middle Mountain/Tobacco
Roots
Mt. Jefferson
North Big Hole
O'Neil Creek
Potosi
Saginaw Creek
Sheep Mountain
Snowcrest Mountain
Sourdough Mountain
Tash Peak
Timber Butte
Vigilante
West Big Hole
West Pioneer
Whitetail/Haystack

Gallatin National Forest

Bridger Gallatin Fringe Lionhead Madison

National Natural Landmark (NNL)

The National Natural Landmarks Program recognizes and encourages the conservation of outstanding examples of our country's natural history. It is the only natural areas program of national scope that identifies and recognizes the best examples of biological and geological features in both public and private ownership. National Natural Landmarks (NNLs) are designated by the Secretary of the Interior, with the owner's concurrence. To date, fewer than 600 sites have been designated. The National Park Service administers the NNL Program, and if requested, assists NNL owners and managers with the conservation of these important sites.

One NNL (Red Rock Lakes National Wildlife Refuge) was identified in the study area.

Research Natural Area (RNA)

An area with prime examples of natural ecosystems or significant genetic resources with value for long-term research. Activities within RNAs are restricted to non-manipulative research, education, and other activities that will not detract from the area's research value.

The following nine existing RNAs and 2 proposed RNAs were identified in the study area: (1) existing – Skull Odell RNA, Cottonwood Creek RNA, Cliff Lake, Bernice RNA, Lost Park RNA, Dry Mountain RNA, Basin Creek RNA, Horse Prairie RNA, and Cave Mountain RNA. (2) proposed – Cattle Gulch RNA and Elkhorn RNA.

State Park

The Montana Fish, Wildlife & Parks administer a number of developed recreation sites in areas with some unique historic, scenic, natural, or cultural value. Most state parks provide camping facilities and picnic areas, interpretive sites, and other recreational facilities.

Four Montana State Parks (Missouri Headwaters State Park, Lewis and Clark Caverns State Park,

Madison Buffalo Jump State Park, and Bannock State Historic Park) were identified in the study area.

State Wildlife Management Are (WMA)

These areas are designated and managed by Montana Fish, Wildlife & Parks. Usually located in areas of significant wildlife habitat, this designation protects wildlife resources and provides opportunities for studies.

The following seven Montana State Wildlife Management Areas were identified in the study area: Warm Springs WMA, Mount Hagen WMA, Fleecer Mountain WMA, Bear Creek WMA, Robb Creek WMA, Wall Creek WMA, and Blacktail/Robb Creek WMA.

The Nature Conservancy

The Nature Conservancy is a conservation organization working to protect the most ecologically important lands and waters around the world for nature *and* people. The mission of The Nature Conservancy is to preserve the plants, animals and natural communities that represent the diversity of life on Earth by protecting the lands and waters they need to survive.

Two Nature Conservancy Macrosites (Sixteenmile and Spanish Peaks) were identified in the study area.

Idaho

Land Jurisdiction

The study area encompasses approximately 11,251 square miles. Generally, a third of the study area is in private ownership. The rest is primarily publicly owned and managed by either the BLM, Forest Service, National Park Service, Department of Energy, Idaho Fish and Game, Idaho Transportation Department, Idaho Department of Lands and various local governments. Major population centers within the study area include Twin Falls, Idaho Falls, and Pocatello.

Existing Land Use

Existing land uses within the study area are diverse, ranging from residential development, mineral extraction, agriculture (farming and ranching), wildlife habitat, recreation, and tourism. Residences are dispersed throughout the study area, but are present in greater concentrations along major transportation routes. Mining claims are also scattered throughout the study area. Agriculture and ranching are the economic bases. Irrigation water from the Snake River and wells allow production of potatoes, sugar beets, and wheat. There is also dryland farming of winter wheat. Cow-calf and ewe-lamb operations are the major types of ranching. Most BLM land is managed as grazing and open space land. These open spaces offer a number of recreational activities including hunting, fishing, hiking, and wildlife observation. The Snake River is a local natural and recreational resource, and serves as a major source of tourism. Recreational activities include camping, picnicking, hiking, fishing and OHVs in the summer; hunting in the fall; and snowmobile and cross-country skiing in the winter. State trust lands in the study area are generally available for mineral and agricultural leasing, and public recreation.

Other land uses within the study area includes commercial, industrial, public and institutional uses, Idaho National Laboratory (INL), communication sites and airports. Most commercial and industrial development in the study area can be found in or around cities and towns or near the on/off ramps of Interstate 15 and state highways.

In operation since 1949, the INL is a science-based, applied engineering national laboratory dedicated to supporting the U.S. Department of Energy's missions in nuclear and energy research, science, and national defense. The INL is operated for the Department of Energy (DOE) by Battelle Energy Alliance (BEA) and partners, each providing educational, management, research and scientific assets.

Twenty five airports registered with the Federal Aviation Administration were identified in the study area in Idaho (see Table 3.2-6).

Residential areas and subdivisions are concentrated in and around Idaho Falls and in the Wood River Valley. Spencer, Dubois, Aberdeen, American Falls, Arco, Shoshone, Carey, Picabo, Spencer, and Ledor also contain high concentrations of residential development.

Linear Facilities

Major linear features located within the study area include electrical transmission lines, railroads and various roadways. Northwestern Energy, Idaho Power Company, and PacifiCorp currently own and operate several transmission lines of various voltages in the study area.

Union Pacific Railroad operated 1,096 miles within Idaho in 1994 (plus trackage rights over the Camas prairie) and owns another 25 miles which were not operated in 1994. The Union Pacific Railroad's main line between the Pacific Northwest and the Midwest generally follows the Snake River in Southern Idaho, where there is also a network of feeder lines. Another main line runs from Silver Bow, Montana to Ogden, Utah via Pocatello.

Highways and roads include interstate highways (I 15, I 86) U.S. highways (US 20, US 26, US 30 and US 93), state highways (S 22, S 24, S 28, S 29, S 39, S 46, S75 and S87), Forest Service and BLM roads, as well as local roads. Forest Service and BLM roads provide public access to and across lands managed by the federal agencies and serve the needs of recreation and commerce.

Planned Land Use

Agency designated or proposed utility/energy corridors within the study area are found in Tables 3.2-7 and 3.2-8.

Table 3.2-6 Federal Aviation Administration Registered Airports located in the Study Area (Idaho)

Type	County	City	Facility Name	Use
Airport	Bingham	Aberdeen	Aberdeen Muni	Public
Airport	Power	American Falls	American Falls	Public
Airport	Butte	Arco	Arco-Butte County	Public
Airport	Butte	Atomic City	Big Southern Butte	Public
Airport	Blaine	Atomic City	Coxs Well	Public
Airport	Bingham	Atomic City	Midway	Public
Airport	Blaine	Bellevue	Sluder Airstrip	Private
Airport	Blaine	Carey	Carey	Public
Airport	Clark	Dubois	Dubois Muni	Public
Airport	Blaine	Hailey	Friedman Memorial	Public

Type	County	City	Facility Name	Use
Airport	Camas	Hailey	Magic Reservoir	Public
Airport	Bonneville	Idaho Falls	Idaho Falls Rgnl	Public
Airport	Jefferson	Idaho Falls	Q.B. One	Private
Airport	Lincoln	Kimama	Laidlaw Corrals	Public
Airport	Fremont	Lake/Island Park/	Henry's Lake	Public
Airport	Lemhi	Leadore	Leadore	Public
Airport	Blaine	Martin	Hollow Top	Public
Airport	Blaine	Minidoka	Bear Trap	Public
Airport	Jefferson	Mud Lake	Mud Lake/West Jefferson County/	Public
Airport	Blaine	Muldoon	Flat Top Airstrip	Private
Airport	Blaine	Picabo	Picabo	Private
Airport	Bingham	Riverside	Russell W Anderson Strip	Private
Airport	Bingham	Rockford	Rockford Muni	Public
Airport	Lincoln	Shoshone	Black Butte Ranch	Private
Heliport	Lincoln	Shoshone	Shoshone BLM	Private

Table 3.2-7. BLM Existing and Proposed/Potential Utility Corridors within the Study Area (Idaho)

Field Office	RMP/MFP	Designated Utility Corridor(s) Yes No	West-Wide Energy Corridor PEIS Preliminary Energy Corridor(s) Yes No
Pocatello	Pocatello RMP (1987)	No[1]	No (not within field office boundary
Upper Snake	Medicine Lodge RMP (1985) Big Desert MFP (1981) Big Lost MFP (1983) Little Lost-Birch Creek MFP	No[2] No No Yes[3]	Yes (within field office boundary)
Shoshone	Monument RMP (1985) Craters of the Moon RMP Magic MFP Bennett Hills MFP Timmerman Hills MFP Sun Valley MFP (1981)	No[4] No No No No No[5]	Yes (within field office boundary)
Burley	Monument RMP	No – See above.	Yes (within field office boundary)
Salmon	Lemhi RMP Amendment and Decision Record (2001)	No	No (not within field office boundary)

[1] Right-of-way development would occur with standard stipulations on 191,561 acres. Restrictions other than standard stipulations would be imposed on 42,251 acres. A total of 30,669 acres would be closed to right-of-way development. Utility and transportation development may be permitted based on consideration of the following criteria:
a. Type of and need for the proposed facility.
b. Conflicts with other existing or potential resource values and uses.
c. Availability of alternatives and/or mitigation measures
[2] Utility and transportation corridor development may be permitted based on consideration of the following criteria:
a. type of and need for facility proposed:
b. conflicts with other resource values and uses, including potential values and uses; and
c. availability of alternatives and/or mitigation measures.
Applicants will be encouraged to locate new facilities within existing corridors to the extent possible.

[2] Establish utility corridors throughout the planning area for routing of future major powerlines and other utility systems. Establish utility corridors as designated on Lands MFP step Overlay. The designation of utility corridors based upon existing utility systems would help minimize negative environmental impacts. These established utility corridors would also help keep development out of the identified quality areas which are undisturbed in nature.

[3] Generally, public lands may be considered for the installation of public utilities, except where expressly closed by law or regulation. Project approval will be subject to preparation of an environmental assessment or environmental impact statement. BLM will work closely with State and Federal agencies, local governments, utility companies, and other interested parties to determine appropriate locations and environmental safeguards for public utilities involving public lands. In the Monument Planning Area, rights-of-way in common will be used when-ever possible.

[4] Sun Valley Analysis Unit – Utility rights-of-way will be allowed if consistent with county planning and zoning ordinances. All construction

[5] will be designed to be as unobtrusive as practical (i.e. buried utility lines, placement of structures, color, design, etc.).

[6] Big Wood Analysis Unit – Allow rights-of-way for utility and transportation purposes (both public and private), provided the uses comply with all requirements of this plan. Rights-of-way applications will be examined on a case-by case basis to determine routes, impacts, and mitigating measures.

Muldoon Analysis Unit – Allow rights-of-way for utility and transportation purposes (both public and private), provided the uses comply with all requirements of this plan. Rights-of-way applications will be examined on a case-by-case basis to determine routes, impacts, and mitigating measures.

Table 3.2-8. Forest Service Existing and Proposed/Potential Utility Corridors within the Study Area (Idaho)

National Forest	FP/LRMP	Designated Utility Corridor(s) Yes No	West-Wide Energy Corridor PEIS Preliminary Energy Corridor(s) Yes No
Caribou-Targhee	Targhee FP (1997)	No – Avoid parallel corridors. Consolidate facilities within existing energy corridors where feasible. Proponents of new facilities within existing corridors, and new corridor routes, must demonstrate clearly that the proposal is in the public interest, and that no other reasonable alternative exist to public land routing.	Yes (within Caribou-Targhee National Forest boundary)
Challis	Challis LRMP (1987)	No – New proposals will be evaluated when the need arises.	No (not within National Forest boundary
Salmon	Salmon LRMP (1988)	No - The Frank Church--River of No Return Wilderness and Classified Recreation River area are not available for new utility corridors. The Beaverhead and Lemhi Mountain ranges are assumed not available for utility corridors, except for the Bannock Pass/Rail Road Canyon/Eightmile Creek (long range BPA route) and/or Tendoy/Hayden Creek areas. based on a clear showing of public need and benefit. Minor utility corridors will only be considered on other areas of the Forest after a clear showing of need.	No (not within National Forest boundary)
Sawtooth	Sawtooth LRMP (2003)	No[1]	No (not within National Forest boundary)

[1] LSG004-Proposed special uses of National Forest System lands-such as hydroelectric development, communication sites, water developments, and utility corridors-are considered that meet public needs, are consistent with direction for other National Forest resources, and cannot be accommodated off the National Forest.
LSOB09-Continue working with utilities and others to identify potential areas for additional designated utility communication facilities.
LSST09-Proposals for utility and communication facilities outside designated utility sites or utility and wireless technology corridors shall be considered only after improvement of existing facilities to accommodate expanded use is analyzed and determined to be unreasonable.
LSGU03-Necessary rights for county roads, state highways, and utility improvements should be conveyed when such conveyances are in the long-term interest of management of the National Forest and in the public interest.
LSGU16-The 1993 Western Regional Utility Corridor Study, or its successors, should be used as a reference document when considering land use decisions than may affect existing and/or proposed major electric power utility corridors.

County utility corridor comprehensive plan/growth policies and applicable discussions thereof, are presented below in Table 3.2-9.

Service land includes, but is not limited to, camping, picnicking, hunting, fishing, floatboating, hiking, cross-country skiing, snowmobiling, and sightseeing.

The BLM also has land holdings in the study area. The majority of this land is not contiguous; it is fragmented and many times isolated by private holdings. Most of this land is managed for multiple use.

Table 3.2-9. County Utility Corridor Comprehensive Plan/Growth Policies within the Study Area (Idaho)

County	Comprehensive Plan/Growth Policy	Utility Corridor Comprehensive Plan/Growth Policy Yes No*
Idaho		
Butte	Yes – Butte County Comprehensive Plan (2006)	No - Major transmission facilities should be kept out of the residential areas of the community. Communication between the County, private landowners and the utility company are essential to mitigate negative impacts from occurring.
Custer	Yes – Custer County Comprehensive Plan (2004)	No - Monitor all public facilities, services, and utilities within the county. Require that any major modifications, improvements, additions, or new services submit a plan to the county for review. Ensure that the plan complies with the comprehensive plan, communication within affected agencies is accomplished, and confirm the proposal is in the public's best interest. Work with the various state and federal agencies to ensure environmental protection as development occurs. Work with the various state and federal agencies to ensure environmental protection as development occurs. Rights-of-way on public lands used for public or utility services should not create an undue financial burden on the residents of the county.
Power	Yes – Power County Comprehensive Plan (1995)	No
Blaine	No	No
Camas	Yes – Camas County Comprehensive Plan (2006)	No
Gooding	Yes – Gooding County Comprehensive Plan (1999)	No
Jerome	Yes – Jerome County Comprehensive Plan (1997)	No
Lincoln	Yes – Lincoln County Comprehensive Plan (2003)	No
Minidoka	Yes – Minidoka County/City of Rupert Comprehensive Plan (2001)	No – Major transmission facilities should be kept out of the residential areas of the community. Communication between the county and city, private landowners and the

County	Comprehensive Plan/Growth Policy	Utility Corridor Comprehensive Plan/Growth Policy Yes No*
		utility companies is essential to mitigate negative impacts from occurring. To consult and plan with utility companies so that facilities installed may be located and designed to minimize the impact on the environment and surrounding uses where practical. To notify all utility companies of Planning and Zoning Commission decisions, and of the size and location of new developments.
Clark	No	No
Fremont	Yes – Fremont County Comprehensive Plan (1990)	No
Jefferson	Yes - Jefferson County Comprehensive Plan (2005)	No – Encourage the common use of utility corridors, including public rights-of-way where appropriate, by public and private utilities where common use can be achieved safely and effectively.
Bannock	Yes – Bannock County Second Century, the 1995-2020 Comprehensive Plan	No – Balance need for additional utilities against cost to community in dollars and aesthetics; Require a conditional use permit in all zoning district for utility facilities and transmission lines – add a standard that there must be a community need; and Establish and preserve utility routes and easements.
Bingham	Yes - Bingham County Comprehensive Plan (2005)	No – Coordinate planning for public services, facilities and utilities with the municipalities of the county and with irrigation companies and drainage districts to prevent interference with the delivery and drainage of irrigation water.
Bonneville	Yes – Bonneville County Comprehensive Plan (2004)	No
Madison	Madison County Comprehensive Plan (1996)	No

*Utility discussion provided, where appropriate.

Recreational opportunities include hiking, horseback riding, off-road vehicle travel, fishing, hunting, wildlife viewing, camping, picnicking, skiing, and snowshoeing.

State parks within the study area also offer outdoor activities such as Native American history, geological sites, wildlife preserves, water sports, photography, hiking, camping, and fishing. State Wildlife Management Areas and Fishing Access Sites are also found within the study area.

Recreational opportunities include hunting, fishing, wildlife viewing, hiking, snowmobiling, and skiing. Navigable waterways and islands owned by the state also provide additional recreational opportunities. Some municipalities offer museums, parks, baseball fields, rodeo grounds/fairgrounds, walking/hiking/bicycle trails, water sports, outdoor sports activities at schools, and other opportunities.

In addition to public lands, recreational opportunities exist on privately owned lands, including private campgrounds and resorts. Activities such as hunting and backcountry trips also may be permitted on privately owned land with landowner consent.

Parks, Recreation, and Preservation Areas

The study area contains a number of recreational opportunities that vary with seasonal changes. Spring and summer provide opportunities for fishing, hiking, photography, horseback riding, wildlife viewing, spring hunting, water sports (powered and non-powered), off-road vehicle activities, camping, picnicking, and touring (vehicle and bicycle). Winter brings the winter sports of skiing, snowshoeing, snowboarding, and snowmobiling. There are four National Forests in the study area: Caribou-Targhee, Salmon, Challis and Sawtooth. These forests provide a variety of yearlong, outdoor recreation. Activities on Forest Service land includes, but is not limited to, camping, picnicking, hunting, fishing, floatboating, hiking, cross-country skiing, snowmobiling, and sightseeing.

The BLM also has land holdings in the study area. The majority of this land is not contiguous; it is fragmented and many times isolated by private holdings. Most of this land is managed for multiple use. Recreational opportunities include hiking, horseback riding, off-road vehicle travel, fishing, hunting, wildlife viewing, camping, picnicking, skiing, and snowshoeing.

State parks within the study area also offer outdoor activities such as Native American history, geological sites, wildlife preserves, water sports, photography, hiking, camping, and fishing. State Wildlife Management Areas and Fishing Access Sites are also found within the study area.

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In addition to public lands, recreational opportunities exist on privately owned lands, including private campgrounds and resorts. Activities such as hunting and backcountry trips also may be permitted on privately owned land with landowner consent.

Special Management Area Designations

Wilderness Area

One Wilderness Area is located in the study area in Idaho. The Craters of the Moon Wilderness, designated on October 23, 1970, is located south of US 93 entirely within the original Monument.

Recommended Wilderness

Two areas were recommended for wilderness designation within the study area. One of these areas is located in the Targhee National Forest and the other in the Sawtooth National Forest.

Wilderness Study Area (WSA)

The following twenty WSAs are located in the study area: Henry's Lake WSA, Eighteen Mile WSA, Sand Mountain WSA, Black Canyon WSA, Appendicitis Hill WSA, Hell's Half Acre WSA, Friedman Creek WSA, Great Rift WSA, Little Wood River WSA, Cedar Butte WSA, Raven's Eye WSA, Little Deer WSA, China Cup Butte WSA, Bear Den Butte WSA, Black Butte WSA, Little City of Rocks WSA, Sand Butte WSA, Lava WSA, Shale Butte WSA, and Shoshone WSA. Four of these WSAs (Great Rift WSA, Raven's Eye WSA, Little Deer WSA, and Bear's Den Butte WSA) have been designated within the boundaries of the Craters of the Moon National Monument. Eighty-four percent of these WSAs lie within the National Preserve; the rest is managed by BLM.

BLM Area of Critical Environmental Concern (ACEC)

BLM ACECs within the study area are described in Table 3.2-10.

Table 3.2-10. BLM ACECs within the Study Area (Idaho)

Field Office	ACEC Name	Designation Date	Size (Acres)	Reason for Designation	Land Use Plan(s)
Idaho Falls	St. Anthony Sand Dunes RNA	1129/85	1,780	Botanical/Geological	Medicine Lodge RMP
Idaho Falls	Snake River	11/29/85	11,120	Recreation, Scenic, Riparian, Fish & Wildlife (Bald Eagle)	Medicine Lodge RMP
Idaho Falls	Nine Mile Knoll	9/21/87	40,090	Wildlife	Medicine Lodge RMP
Idaho Falls	Henrys Lake	7/28/97	1,681	T&E Species, Riparian	Medicine Lodge RMP
Shoshone	Elk Mountain	12/13/81	11,887	Elk winter range	Sun Valley MFP
Shoshone	Sun Peak	1/14/91	560	Relict natural vegetation	Sun Valley MFP
Shoshone	Tee-Maze Research Natural Area*	8/20/2003	10,762	Cave; wildlife; scenic	Bennett Hills/Timmerman Hills MFP amendment

*Does not allow new rights of way.

National Wildlife Refuges (NWR)

Two National Wildlife Refuges (Camas National Wildlife Refuge and Minidoka National Wildlife Refuge) are located in the study area.

The Camas National Wildlife Refuge is located within the study area. The Refuge provides vital habitat for a variety of migratory birds. About half of the refuge's 10,578 acres are lakes, ponds, and marshlands.

The remainder consists of grass-sagebrush uplands and meadows. Camas Creek flows for 8 miles through the length of the refuge and is the source of water for many lakes and ponds. Several wells on the refuge also provide water for wildlife during the summer.

The Minidoka National Wildlife Refuge extends 25 miles along both shores of the Snake River, upstream from the Minidoka Dam in south-central Idaho. Over half of the refuge is open water, with small patches of marsh that attract concentrations of up to 100,000 ducks and geese during spring and fall migrations. Colonial nesting birds, river otters, and mink feed upon the large populations of cold- and warm water fish that flourish in shallow beds of submerged vegetation.

The refuge is an important stopover area in the Pacific Flyway. Concentrations of up to 100,000 ducks and geese have been documented during spring and fall migrations, and close to 500 tundra swans can be seen as they migrate through in the spring.

The following are excerpts from the USFWS 340 FW 3, Rights of Way and Road Closings:

> **3.3** "It is the policy of the Service to discourage the types of uses embodied in right of way requests. On areas in the National Wildlife Refuge System (System), if a right of way cannot be certified as compatible with the purposes for which a unit was established, it cannot be granted without authorization by Congress (50 CFR 29.21 (g))."
>
> **3.6A(3)** "A determination of compatibility or noncompatibility cannot be made in an arbitrary manner and such a determination must be supported by facts. The facts can best be presented in an environmental assessment (EA) or environmental impact statement (EIS). A determination of compatibility with the purposes of which a unit of the System was established must mean consideration only of wildlife values or project values, not of any broader social or economic concerns."
>
> **3.6A(4)** "For lands in the System, the file must contain a finding by the Regional Director that the proposed use is compatible as defined in 50 CFR 29.21 (g). If the proposed use cannot be certified as compatible, the permit or easement cannot be granted. The term "inconsistent" in Section 28(6)(1) of the Mineral Leasing Act of 1920, as amended, shall be deemed to mean a use that is "not compatible," as "compatible" is defined herein (50 CFR 29.21 (g)). A compatibility determination is not required on Service lands other than those in the System (National Fish Hatcheries, Research Areas, and Administrative Sites)."

National Monuments

The Antiquities Act of 1906 authorized the President to declare by public proclamation landmarks, structures, and other objects of historic or scientific interest situated on lands owner or controlled by the government to be national monuments.

The Craters of the Moon National Monument and Preserve is located within the study area. Its central focus is the Great Rift, a 62-mile long crack in the earth's crust. The Great Rift is the source of a preserved volcanic landscape with an array of exceptional features. Craters, cinder coves, lava tubes, deep cracks, and vast lava fields form a volcanic sea on central Idaho's Snake River Plain. Craters of the Moon National Monument and Preserve contains three young lava fields covering almost half a million acres. The more than 750,000 acre National Monument and Preserve is co-managed by the National Park Service and the Bureau of Land Management.

A Proposed Management Plan/FEIS for the Craters of the Moon National Monument has been completed. Upon resolution of any protests, the plan is anticipated to be approved and a Record of Decision issued.

National Preserves

National preserves are areas having characteristics associated with national parks, but in which Congress has permitted continued public hunting, trapping, oil/gas exploration and extraction. Many existing national preserves, without sport hunting, would qualify for national park designation.

See above (*National Monument*).

National Battlefields

Camas Meadows Battle Sites in southeastern Idaho consist of Gen. Oliver O. Howard's Camp Calloway and about 3 miles away, Capt. Randolph B. Norwood's encounter site. These two skirmish sites are associated with the 1877 Nez Perce War.

Inventoried Roadless Areas

The following Inventoried Roadless Areas, by National Forest, were identified in the study area:

Salmon – Challis National Forest

06-014 Jumpoff Mountain	06-601 Diamond Peak	13903 Lemhi Range
06-026 Cold Springs	06-921 Pioneer Mountains	13944 Goad Mountain
06-028 Wood Canyon		13945 Italian Peak

Sawtooth National Forest

Pioneer Mountains

Targhee National Forest

Diamond Peak	Lionhead
Garfield Mountian	Mt. Jefferson
Italian Peak	Reynolds Pass

National Natural Landmarks (NNL)

The Craters of the Mood National Monument encompasses most of the Great Rift NNL, which was designated by the Secretary of the Interior in 1968 for its geological significance and enlarged in 1980 in recognition of its biological significance.

Research Natural Areas (RNA)

The following eleven RNAs were located in the study area: St. Anthony Sand Dunes RNA, Tee-Maze RNA, Sheep Mountian RNA, Webber Creek RNA, Meadow Canyon RNA, Copper Mountain RNA, Middle Canyon RNA, Cary Kipuka RNA, Big Juniper Kipuka RNA, Brass Cap RNA, and Sand Kipuka RNA. Four of these RNAs have been designated within the Craters of the Moon National Monument: Cary Kipuka RNA, Big Juniper Kipuka RNA, Brass Cap RNA, and Sand Kipuka RNA.

State Parks

The Idaho Department of Parks and Recreation administer a number of developed recreation sites in areas with some unique historic, scenic, natural, or cultural value. Most state parks provide camping facilities and picnic areas, interpretive sites, and other recreational facilities.

Within the study area, Henrys Lake State Park is located 15 miles west of Yellowstone National Park. The park offers campfire programs and a Junior Ranger program, fishing, boating, and camping.

State Wildlife Management Areas (WMA)

These areas are designated and managed by the Idaho Fish and Game. Usually located in areas of significant wildlife habitat, this designation protects wildlife resources and provides opportunities for studies.

Three State Wildlife Management Areas (Market Lake WMA, Mud Lake WMA, and Sand Creek WMA) were identified in the study area.

Although not designated a State Wildlife Management Area, the Hayspur Hatchery (managed by the Idaho Fish and Game) is located in Blaine County, approximately 40 miles south of Sun Valley on Loving Creek. Hayspur Fish Hatchery is a license-funded resident salmonid broodstock facility. Hatchery personnel maintain an on-site public campground, a general season pond fishery, and a trophy stream

The Nature Conservancy

With the assistance of The Nature Conservancy, the BLM Idaho Falls District purchased a 160-acre conservation easement from the Pearson family on August 1, 2006. The property is located within the Upper Snake Field Office's Henrys Lake Area of Critical Environmental Concern. The property is in a substantially undisturbed state, has two important Yellowstone cutthroat trout spawning streams, extensive wetlands, and sagebrush steppe habitat supporting a variety of wildlife and plant species. Land and Water Conservation Funds were combined with a North American Wetland Conservation Act grant and a landowner donation to facilitate the conservation easement purchase.

3.2.2 Sensitivity Analysis

Montana

A number of scattered exclusion areas are present within the study area and are attributed to a military facility (Limestone Hills Training Area), one BLM ACEC (Beaverhead Rock), two Wilderness Areas (Lee Metcalf Wilderness-Bear Trap Unit and Red Rock Lakes National Wildlife Wilderness), and a number of public and private airports, recommended wilderness areas, and wilderness study areas. Areas classified as high sensitivity also exist within the study area and are associated with the Red Rock Lakes National Wildlife Refuge, Grant-Kohrs Ranch National Historic Site, Big Hole National Battlefield, Red Rock Lakes National Wildlife Refuge National Natural Landmark, and numerous Inventoried Roadless Areas, RNAs, BLM ACECs, State Parks, State Wildlife Management Areas, private conservation areas, urban/developed areas, and agriculture/pasture.

Idaho

A number of scattered exclusion areas are also present within the study area in Idaho and are attributed to one BLM ACEC (Tee-Maze), one Wilderness Area (Craters of the Moon Wilderness), and a number of public and private airports, recommended wilderness areas, and wilderness study areas. Areas classified as high sensitivity also exist within the study area and are associated with two National Wildlife Refuges

(Camas and Minidoka), Craters of the Moon National Monument and Preserve, Camas Meadows Battle Sites, Great Rift National Natural Landmark, Idaho National Laboratory, Henrys Lake State Park, Hayspur Fish Hatchery and numerous Inventoried Roadless Areas, RNAs, BLM ACECs, State Wildlife Management Areas, urban/developed areas, and agriculture/pasture.

3.3 VISUAL RESOURCES

This section summarizes visual resources in the study area.

3.3.1 Resource Inventory

Agency Management Classes

Only a portion of the study area is covered by agency management objectives (VRM's, VQO's). BLM VRM Classes and forest service VQOs are found in the study area. Data has been collected on the Targhee and Sawtooth National Forests, Dillon BLM Field Office, and portions of Idaho State BLM lands.

The Headwaters RMP (BLM Montana) does not identify VRM's, and each project is to be evaluated on a case by case basis with VRM's established in the field (Rixford 2006). Other agencies (Beaverhead-Deerlodge National Forest, Gallatin National Forest, Salmon-Challis National Forest, Medicine Lodge RMP, Big Desert MFP, and Sun Valley MFP) have not mapped visual management objectives, or data was not received from the agencies by the end of the data collection phase of the project.

The most restrictive visual resource management objectives (VRM's & VQO's) occur in SMA's (WSA, Designated Wilderness) and adjacent to significant travel routes (i.e. Idaho SH28 & US20).

National Scenic and Historic Trails

Montana/Idaho

Continental Divide National Scenic Trail (CDNST): The Continental Divide National Scenic Trail, also known as "The King of Trails," is a north-south trail running from the Mexican border in New Mexico to the Canadian border in Montana (NST 2006). The trail roughly follows the boundary of the Idaho and Montana border in the study area.

Nez Perce National Historic Trail: This 1,170 mile long trail follows the 1877 journey of the Nez Perce Indian tribe who were attempting to flee the United States Cavalry (NST 2006). In the study area, the trail is located north of Dubois, Idaho, and roughly parallels Idaho State Highways 28 and 22.

Lewis and Clark National Historic Trail: This tail follows the "Corps of Discover" journey along known archeological sites (NST 2006). Within the study area, the trail is located along the Beaverhead and Jefferson Rivers, and west of Dillon, Montana into Idaho.

Idaho

Oregon Trail (Goodale's Cutoff) National Historic Trail: This trail was used as a pathway for travelers heading west during the mid 19th century. In the study area, the trail is located on the southeast portion of the study area paralleling the south side of Interstate 86. Goodale's Cutoff was used after Native American hostilities increased after 1862(NST 2006).

National and State Scenic, Historic and Back Country Highways and Byways

Idaho

Fort Henry State Historic Byway: This Byway is located west of US 20 south of Idaho/Montana border, and follows Red Road north of St. Anthony to Dubois-Kilgore Road (A2) and north of Island Park Reservoir to the intersection of US 20 (NSBO 2006, IDS 2006).

Lost Gold Trails Loop: This Byway is located about 15 miles south of the Idaho/Montana border, and forms a loop with Interstate 15 on the west side. It is associated with the Fort Henry State Historic Byway. The byway follows Dubois-Kilgore Road (A2) northeast of Dubois, and Idmon Road east of Spencer (NSBO 2006, IDS 2006).

Sacajawea State Historic Byway: This State Byway begins on County Highway 33 at Interstate 15 in Idaho, and follows County Highway 33 to the intersection of County Highway 28 (Salmon Highway), and continues north towards Lemhi and Salmon, Idaho (NSBO 2006, IDS 2006).

Sawtooth State Scenic Byway: This State Designated Highway is located on the western side of the study area along State Highway 78 in Idaho. It begins in Jerome, and continues northward towards Sun Valley and northward (NSBO 2006, IDS 2006).

Montana

Anaconda-Pintler Scenic Highway: This state scenic highway begins west of Anaconda City, and follows Montana State Highway 1 to Drummond, Montana (NSBO 2006).

Big Sheep Creek – Medicine Lodge Back Country Byway: This 50-mile byway is located west of Dell, Montana along Big Sheep Creek Road (NSBO 2006).

The Pioneer Mountains Scenic Byway is located between Wise, MT and Polarus, MT within the Beaverhead-Deerlodge National Forest east of the Pioneer Wilderness Study Area. The Scenic Byway starts at Montana State Highway 43 in the town of Wise River and travels south approximately 49 miles over Forest Service Highway 73 to County Highway 278 (NSBO 2006).

3.3.2 Sensitivity Analysis

Montana

Exclusion areas in Montana are located in the Lee Metcalf Wilderness, Axolotl Lakes WSA, Ruby Mountains WSA, Black Tail Mountains WSA, East Fork Blacktail Deer Cree Creek WSA, Hidden Pasture Creek WSA, Bell/Limekiln Canyons WSA, Henneberry WSA, and Farlin Creek WSA. High sensitivity corridors in clued the Lewis and Clark National Historic Trail running roughly parallel to I-15 from east of Bozeman towards Trident Substation and north towards Canyon Ferry Lake, and southwest towards Dillion rough paralleling Montana State Highways 41, 43 and 278. The Pioneer Mountains Scenic By way and Nez Perce National Historic Trail have a high sensitivity level and are located on the western edge of the study area in Montana.

Idaho

Areas of highest sensitivities for agency management objectives occur along portions of Idaho State Highway 28, US20 west of Idaho State Highway 75, along Idaho State Highway 75 and portions of Idaho State Highway 46, along portions of US93/26/20 within the Craters of the Moon National Monument, Adjacent to the I-15 corridor between Humphrey, ID and Spencer, ID, along portions of US287 south of

Cameron, MT, and within numerous wilderness and wilderness study areas. Exclusion areas occur in Idaho in three primary locations: Eighteen Mile WSA, Black Canyon WSA, and northwest of Amps Substation on BLM lands.

3.4 CULTURAL RESOURCES

3.4.1 Resource Inventory

Montana

Table 3.4-1 summarizes the numbers of previously recorded archaeological sites and standing structures. For Montana, these data are limited to the portions of each county that fall within the Study Area boundaries. Table 3.4-1 also lists the number of properties in the Study Area currently listed in the National Register, the number of NHLs in the Study Area (which are also automatically listed in the National Register), and the number of units within the National Park System (National Parks, National Monuments, National Historic Sites, etc.) with prehistoric or historic themes.

Table 3.4-1. Recorded Cultural Resources in or near Study Area

State	Recorded Archaeological Resources[1]	Recorded Architectural Resources[1, 2]	National Register-Listed Properties within Study Area	National Historic Landmarks in Study Area	Units of National Park System within Study Area
Idaho	*11,267*	*>3,009*	*75*	*1*	*1*
Montana	*4,612*	*1,398*	*192*	*5*	*2*
TOTAL			**267**	**6**	**3**

[1]Data from ISHS files is for entire counties in Idaho, not just portions within Study Area. Data from MHS sites is for portions of counties within Study Area.
[2]ISHS database for architectural resources (historic sites/structure) in Idaho is only partially completed.

Idaho

Table 3.4-1 summarizes the numbers of previously recorded archaeological sites and standing structures. For Idaho, summary data are available only for each county as a whole. The actual number of archaeological and architectural resources within the Idaho portion of the Study Area is less than the totals shown in the table. However, collecting data only for the portions of each county within the Study Area would require inspection of thousands of inventory forms and hundreds of maps. Table 3.4-1 also lists the number of properties National Register-listed properties, NHLs, and units of the National Park System with prehistoric or historic themes in the Study Area.

3.4.2 Sensitivity Analysis

Montana

Exclusion. Exclusion areas are locations where the siting of transmission lines is essentially precluded. For cultural resources, Exclusion Areas in Montana include:

- Two units of the National Park System:

  - Big Hole National Battle Field, Nez Perce National Historical Park (Beaverhead County, Montana); and
  - Grant-Kohrs Ranch National Historic Site (Powell County, Montana).

- Five NHLs:

  - Bannack Historic District NHL (Beaverhead County, Montana);
  - Three Forks of the Missouri NHL (Gallatin County, Montana);
  - Virginia City Historic District NHL (Madison County, Montana);
  - Butte-Anaconda Historic District NHL (Silver Bow County, Montana); and
  - Burton K. Wheeler House NHL (Silver Bow County, Montana).

- No sacred sites specifically identified by Federal or State agency archaeologists.

- Five BLM ACECs (classified as Land Use Exclusion areas [see Section 3.2.2]):

  - Beaverhead Rock ACEC;
  - Emerson Creek ACEC;
  - Lewis and Clark Trail ACEC;
  - Muddy Creek/Big Sheep Creek ACEC; and
  - Virginia City ACEC

High Sensitivity. High Sensitivity areas are unique, highly valued, or complex cultural resources. In Montana, High Sensitivity areas include:

- 189 properties listed in the National Register. Five of these area also NHLs. Listed properties include 151 individual architectural resources containing one or two buildings or structures; 30 districts containing from as few as three to over 8,000 buildings and structures; and eight archaeological or historic sites. The majority of the listed properties are in urban areas (i.e., Deer Lodge, Anaconda, Butte, and Bozeman) or in mining districts (Bannack, Virginia City).

- 103 potential sacred sites. These include 50 sites with pictographs or petroglyphs, 15 sites with definite or possible Native American burials, 15 sites with eagle catching or battle pits, 17 vision quest structures, and 2 medicine wheels (Some sites contain more than one type of feature).

Moderate Sensitivity. Moderate Sensitivity areas are cultural resources that have been determined eligible to the National Register or that are in the process of review by the SHPO. In the Montana portion of the Study Area, there are:

- 928 archaeological sites that are eligible to the National Register and 235 architectural resources that have been determined eligible. Some resources contain both archaeological deposits and standing buildings or structures.

Low Sensitivity. Low Sensitivity areas were not systematically identified for this analysis. According to the MHS CRIS database, there are 452 archaeological sites and 120 architectural resources in the Study Area that have been determined ineligible for the National Register. No attempt was made to identify lands that had been surveyed for cultural resources and in which no resources were identified.

No Data. In Montana, over 90 percent of the land has not been surveyed for cultural resources, and 4,370 recorded cultural resources (3,756 archaeological sites and 614 architectural resources) have never been evaluated for National Register eligibility.

Idaho

Exclusion. Exclusion Areas in Idaho include:

- One unit of the National Park System:
  - Camas Meadows Battle Site, Nez Perce National Historical Park (Clark County, Idaho).
- One NHL:
  - Experimental Breeder Reactor No. 1 NHL (Butte County, Idaho).
- One Native American sacred site specifically identified during agency interviews:
  - Big Southern Butte (Butte County, Idaho).

High Sensitivity. High Sensitivity areas in Idaho include:

- 72 properties listed in the National Register. One of these is also an NHL. The listed cultural resources include 60 properties containing one or two buildings or structures; three districts containing up to 40 buildings or structures, one landscape, 7 individual archaeological or historic sites, and one archaeologist district containing 148 individual archaeological sites.

- No known potential sacred sites, because information on sacred sites in southern Idaho was not available from the ISHS or BLM.

Moderate Sensitivity. In Idaho, information on the number and distribution of National Register-eligible cultural resources is not available in digital form, so moderate sensitivity locations are not identified for that state.

Low Sensitivity. Data for defining Low Sensitivity areas in Idaho (i.e., ineligible cultural resources; lands that are known to contain no cultural resources) were not compiled for this analysis.

No Data. In Idaho, less than 7 percent of land has been surveyed for cultural resources, almost all of it Federal (Reid 2006). Therefore, most land within the Study Area has not been intensively and systematically surveyed according to modern standards by professional archaeologists. In Idaho, over 11,000 archaeological sites and more than 3,000 historic buildings and structures have been recorded within the counties that contain portions of the Study Area. Most of these have not been evaluated for National Register eligibility.

3.5 BIOLOGICAL RESOURCES

3.5.1 Resource Inventory

Study Area Overview

Vegetation

The study area is located within the Snake River Plain and Middle Rockies ecoregions (Omernik 1987). The Snake River Plain ecoregion encompasses the southern portion of the study area located in Idaho, and

is primarily comprised of sagebrush steppe, lava fields, and agricultural lands (McGrath et al. 2002). The northern and central portions of the study area are located in the Middle Rockies ecoregion, which primarily contains consist of spruce-fir forests in the mountains and sagebrush steppe and grasslands in the foothills and valleys (McGrath et al. 2002).

Vegetation communities in the northern portion of the study area are dominated by coniferous forests intermixed with grasslands, agriculture and pockets of sagebrush steppe. In the central portion of the study area, vegetation communities transition to one dominated primarily by sagebrush intermixed with fingers of coniferous forests, agriculture, shrublands and grasslands. The southern portion of the study area is more xeric and is dominated primarily by sagebrush, with smaller areas of agriculture, lava fields, and grasslands.

The following presents general description of the major vegetative communities in the study area based upon Montana and Idaho GAP data (Redmond et al. 1998, Scott et al. 2002).

Conifer and Broadleaf Forests

The conifer forest cover type includes whitebark pine (*Pinus albicaulis*), Engelmann spruce (*Picea engelmannii*), lodgepole pine (*Pinus contorta*), subalpine fir (*Abies lasiocarpa*), Douglas fir (*Pseudotsuga menziesii*), and ponderosa pine (*Pinus ponderosa*) forests. Associated shrub species can include huckleberry (*Vaccinium* spp.), snowberry (*Symphoricarpos* spp.), ninebark (*Physocarpus malvaceus*). Associated grass and forb species include bluebunch wheatgrass (*Pseudoroegneria spicata*), Idaho fescue (*Festuca idahoensis*), beargrass (*Xerophyllum tenax*), smooth woodrush (*Luzula hitchcokii*), and arnica (*Arnica* spp.).

In the study area, broadleaf forests typically occur in stands intermixed with coniferous forest. Broadleaf species primarily occur in moist forest areas, near riparian areas, or woody draws. Dominant species present in these mixed forests include aspen (*Populus tremuloides*), bur oak (*Quercus macrocarpa*), green ash (*Faxinus pennsylvanica*), plains cottonwood (*Populus deltoides*), birch (*Betula* spp.), grand fir (*Abies grandis*), Douglas-fir, Engelmann spruce, subalpine fir, western larch (*Larix occidentalis*), western hemlock (*Tsuga heterophylla*), and western red cedar (*Thuja plicata*). Associated shrub species include alder (*Alnus* spp.), huckleberry, serviceberry (*Amelanchier alnifolia*), thimbleberry (*Rubus parviflorum*), snowberry, and mountain-lover (*Pachistima myrsinites*).

Grasslands

Grasslands in the study area are dominated primarily by short to medium height grasses and forbs. These grasslands typically occur in valleys and foothills and on middle to high elevation slopes on south aspects. Dominant species include arrowleaf balsamroot (Balsamorhiza sagittata), bluebunch wheatgrass, blue grama (Bouteloua gracilis), bluestem (Andropogon spp.), green needlegrass (Stipa viridula), Idaho fescue, lupine (Lupinus spp.), needle and thread grass (Hesperostipa comata), rough fescue (Festuca scabrella), Timothy grass (Phleum pratense), and western wheatgrass (Pascopyrum smithii). A portion of these native grasslands are in a disturbed state. Vegetation in these locations can include bull thistle (Cirsium vulgare), Canada thistle (Cirsium arvense), cheatgrass (Bromus tectorum), common dandelion (Taraxacum officinale), crested wheatgrass (Agropyron cristatum), field brome (Bromus arvensis), leafy spurge (Euphorbia esula), smooth brome (Bromus inermis), spotted knapweed (Centaurea maculosa), St. Johnswort (Hypericum perforatum), western ragweed (Ambrosia spp.), and yellow sweetclover (Melilotus officinalis).

Montane Parklands and Subalpine Meadows

Montane parklands and subalpine meadows typically occur at mid to upper elevations in mountain areas. Montane parklands and subalpine meadows consist of grassland ridges, forest openings and meadows dominated or co-dominated by native perennial montane or subalpine grass species. Species present include bluebunch wheatgrass, Idaho fescue, bluegrasses (Poa spp.), sedges (Carex spp.), and Timothy grass. Associated species include yarrow (Achillea millefolium), arnica, arrowleaf balsamroot (Balsamorhiza sagittata), beargrass, and fireweed (Epilobium angustifolium).

Riparian Areas and Wetlands

Forested riparian areas are dominated by conifers, broadleaf species or a mixture of both. Dominant conifer species present include Douglas fir, Engelmann spruce, grand fir, subalpine fir, western hemlock and western red cedar. Dominant broadleaf species present in riparian areas include aspen, birch, black cottonwood (Populus trichocarpa), bur oak, green ash, and plains cottonwood. Associated shrub species present in forest dominated riparian areas include alder, bunchberry (Cornus canadensis), serviceberry, thimbleberry, and willow. Within shrub dominated riparian areas, species of willow are dominant. Additional species present in these areas include alder, black hawthorn (Crataegus douglasii), bog birch (Betula glandulosa), currant (Ribes spp.), red-osier dogwood (Cornus stolonifera), and water birch (Betula occidentalis).

Wetlands dominated by graminoid and forb species are also present in the study area. Species present in wetlands include rushes (Juncus spp.), bluejoint reedgrass (Calamagrostis canadensis), sedges, bulrushes (Scirpus spp.), spikerush (Eleocharis spp.) cinquefoil (Potentilla spp.), cattails (Typha spp.), saxifrage (Saxifraga spp.), and tufted hairgrass (Deschampsia caespitosa).

Sagebrush

Sagebrush (Artemisia spp.) shrublands occur primarily in valleys and occasionally occur on low to mid elevation mountain slopes. The species of sagebrush present depends on site specific requirements such as elevation, slope, aspect, precipitation, and soil type. Sagebrush species present within the study area include basin big sagebrush (A. tridentata ssp. tridentata), mountain big sagebrush (A. tridentata ssp. vaseyana), and Wyoming big sagebrush (A. tridentata ssp. wyomingensis), silver sage (A. cana), and black sagebrush (Artemisia nova). Associated grass and forb species include bluebunch wheatgrass, blue grama, Idaho fescue, and western wheatgrass.

Shrublands

Xeric shrublands in the study area occur primarily in valleys and low elevation mountain slopes where mixed shrubs are dominant with an understory of grasses and forbs. Dominant shrub species present in xeric shrublands include bitterbrush (Purshia tridentata), creeping juniper (Juniperus horizontalis), greasewood (Sarcobatus spp.), mountain mahogany (Cercocarpus spp.), rabbitbrush (Chrysothamnus spp.), four-wing saltbush (Atriplex canescens), spiny hopsage (Grayia spinosa), and budsage (Artemisia spinescens). Associated grass species include bluebunch wheatgrass, blue gramma, Idaho fescue and western wheatgrass.

Mesic shrublands in the study area occur in mountain areas in draws and valleys. Mesic shrublands are dominated by alder, buffalo berry (Shepherdia argentea), ceanothus (Ceanothus spp.), huckleberry, Labrador tea (Ledum glandulosum), ninebark, mountain lover, mountain heath

(Phyllodoce empetriformis), shiny-leaf spiraea (Spiraea betulifolia), sumac (Rhus spp.), snowberry, serviceberry, and whortleberry (Vaccinium scoparium). Common associated species include arnica, beargrass, and pinegrass (Calamagrostis rubescens).

A total of 101 special status plant species are known to occur within the study area. These include one federally listed species (Ute Ladies' tresses) as well as a variety of species designated as sensitive by the BLM and Forest Service. Special status plant species known to occur within the project area, and the state in which they occur, are listed in Table 3.5-1.

Table 3.5-1 Special Status Plant Species Known to Occur within or in the Vicinity of the Study Area

Common Name	Scientific Name	Status[1]	Montana	Idaho
Alkali popcorn-flower	*Plagiobothrys leptocladus*	BLM, USFS	•	
Alkali primrose	*Primula alcalina*	BLM, USFS	•	•
Alpine meadowrue	*Thalictrum alpinum*	BLM, USFS	•	
American yellow lady's-slipper	*Cypripedium parviflorum*	BLM, USFS	•	
Austin's knotweed	*Polygonum douglasii ssp. austinae*	USFS	•	
Bacigalupi's downingia	*Downingia bacigalupii*	BLM		•
Beaked spikerush	*Eleocharis rostellata*	USFS	•	
Beautiful bladderpod	*Lesquerella pulchella*	BLM, USFS	•	
Biennial princesplume	*Stanleya confertiflora*	BLM		•
Bitterroot milk-vetch	*Astragalus scaphoides*	BLM, USFS	•	
Blue gramma	*Bouteloua gracilis*	BLM		•
Bugleg goldenweed	*Haplopappus insecticruris*	BLM, USFS		•
Buxbaum's sedge	*Carex buxbaumii*	BLM, USFS		•
California amaranth	*Amaranthus californicus*	BLM	•	
Centennial rabbitbrush	*Chrysothamnus parryi ssp. montanus*	BLM, USFS		•
Compact gilia	*Ipomopsis congesta ssp. crebrifolia*	BLM	•	
Crimson columbine	*Aquilegia formosa*	BLM	•	
Cusick's giant-hyssop	*Agastache cusickii*	BLM, USFS	•	
Drummond's milkvetch	*Astragalus drummondii*	BLM		•
Dwarf onion	*Allium parvum*	USFS	•	
False felwort	*Lomatogonium rotatum*	BLM		•
False mountain willow	*Salix pseudomonticola*	BLM		•
Fendler cat's-eye	*Cryptantha fendleri*	BLM	•	
Five-leaf cinquefoil	*Potentilla quinquefolia*	USFS	•	
Flexible alpine collomia	*Collomia debilis var. camporum*	USFS		•
Giant helleborine	*Epipactis gigantea*	BLM, USFS	•	•
Green keeled cotton-grass	*Eriophorum viridicarinatum*	USFS		•
Green needlegrass	*Stipa viridula*	BLM		•
Hall's orthotrichum moss	*Orthotrichum hallii*	BLM		•
Hall's rush	*Juncus hallii*	USFS	•	
Hoary willow	*Salix candida*	BLM, USFS		•
Idaho fleabane	*Erigeron asperugineus*	BLM, USFS	•	
Idaho sedge	*Carex idahoa*	BLM, USFS	•	•
Jove's buttercup	*Ranunculus jovis*	USFS	•	
Large-leaved balsamroot	*Balsamorhiza macrophylla*	BLM, USFS	•	
Lemhi milkvetch	*Astragalus aquilonius*	BLM, USFS		•
Lemhi penstemon	*Penstemon lemhiensis*	BLM, USFS	•	•
Lemmon alkali grass	*Puccinellia lemmonii*	BLM	•	
Lichen	*Catapyrenium congestum*	BLM		•
Linearleaf fleabane	*Erigeron linearis*	BLM	•	

Common Name	Scientific Name	Status[1]	Montana	Idaho
Long-sheath water-weed	*Elodea longivaginata*	BLM	●	
Long-styled thistle	*Cirsium longistylum*	BLM	●	
Lost River milkvetch	*Astragalus amnis-amissi*	BLM, USFS		●
Low braya	*Braya humilis*	BLM	●	
Many-flowered viguiera	*Viguiera multiflora*	BLM	●	
Marsh felwort	*Lomatogonium rotatum*	BLM	●	
Matted wild buckwheat	*Eriogonum caespitosum*	BLM	●	
Mourning milkvetch	*Astragalus atratus var. inseptus*	BLM		●
Musk-root	*Adoxa moschatellina*	BLM, USFS	●	
Northwestern thelypody	*Thelypodium paniculatum*	BLM	●	
Nuttall's false sagebrush	*Sphaeromeria argentea*	BLM	●	
Obscure phacelia	*Phacelia inconspicua*	BLM		●
One-flower gentian	*Gentianopsis simplex*	USFS	●	
Painted milkvetch	*Astragalus ceramicus var. apus*	BLM	●	
Pale sedge	*Carex livida*	BLM, USFS		●
Parry's fleabane	*Erigeron parryi*	BLM	●	
Payson bladderpod	*Lesquerella paysonii*	USFS	●	
Peculiar moonwort	*Botrychium paradoxum*	USFS	●	
Perennial summer-cypress	*Kochia americana*	BLM	●	
Picabo milkvetch	*Astragalus oniciformis*	BLM		●
Pink agoseris	*Agoseris lackschewitzii*	BLM, USFS		●
Plains milkvetch	*Astragalus gilviflorus*	BLM		●
Platte cinquefoil	*Potentilla plattensis*	BLM	●	
Primrose monkey-flower	*Mimulus primuloides*	USFS	●	
Prostrate hymenolobus	*Hutchinsia procumbens*	BLM	●	
Railhead milk-vetch	*Astragalus terminalis*	BLM	●	
Railroad canyon wild buckwheat	*Eriogonum soliceps*	BLM	●	
Red glasswort	*Salicornia rubra*	BLM		●
Round-fruited draba	*Draba globosa*	BLM	●	
Rush aster	*Aster junciformis*	USFS		●
Sand wildrye	*Elymus flavescens*	BLM	●	
Sapphire rockcress	*Arabis fecunda*	BLM, USFS	●	
Scallop-leaf lousewort	*Pedicularis crenulata*	BLM	●	
Sepal-tooth dodder	*Cuscuta denticulata*	BLM		●
Sharp-scaled goldenweed	*Haplopappus macronema var. macronema*	USFS	●	
Showy townsend-daisy	*Townsendia florifera*	BLM	●	
Simple kobresia	*Kobresia simpliciuscula*	BLM	●	
Slender thelypody	*Thelypodium sagittatum*	BLM	●	
Small-flowered pennycress	*Thlaspi parviflorum*	BLM	●	
Small-flowered ricegrass	*Piptatherum micranthum*	BLM		●
Snake River milkvetch	*Astragalus purshii var. ophiogenes*	BLM		●
Spreading gilia	*Ipomopsis polycladon*	BLM		●
St. Anthony evening primrose	*Oenothera psammophila*	BLM		●
Sticky false-starwort	*Stellaria jamesiana*	BLM	●	
Storm saxifrage	*Saxifraga tempestiva*	USFS	●	
Swamp willow-weed	*Epilobium palustre*	BLM, USFS		●
Tall dropseed	*Sporobolus asper*	BLM		●
Taper-root orogenia	*Orogenia fusiformis*	BLM, USFS	●	
Taper-tip desert-parsley	*Lomatium attenuatum*	BLM	●	
Taper-tip onion	*Allium acuminatum*	USFS	●	

Common Name	Scientific Name	Status[1]	Montana	Idaho
Timber milk-vetch	*Astragalus convallarius*	BLM	•	
Two-grooved milkvetch	*Astragalus bisulcatus var. bisulcatus*	BLM		•
Ute Ladies' tresses	*Spiranthes diluvialis*	FT, BLM	•	•
Western joepye-weed	*Eupatorium occidentale*	BLM, USFS	•	
Western phacelia	*Phacelia incana*	BLM	•	
Whipple's beardtongue	*Penstemon whippleanus*	BLM	•	
White spruce	*Picea glauca*	BLM		•
White-bract stickleaf	*Mentzelia montana*	BLM	•	
White-stem globemallow	*Sphaeralcea munroana*	BLM	•	
Wind River whitlow-grass	*Draba ventosa*	BLM	•	
Winged-seed evening primrose	*Camissonia pterosperma*	BLM		•
Wool-bearing dandelion	*Taraxacum eriophorum*	BLM	•	

[1] **Status:** FT = Federally Threatened; BLM = BLM Sensitive; USFS = Sensitive Species in U.S. Forest Service Regions 1 and/or 4

Wildlife

The vegetative communities within the study area support a diversity of wildlife species. Wildlife species that occupy grassland, sagebrush steppe, and forested habitats are fairly common throughout the study area. Big game species that occur in the study area include pronghorn (*Antelocapra americana*), mule deer (*Odocoileus hemionus*), white-tailed deer (*Odocoileus virginianus*), elk (*Cervus elaphus*), bighorn sheep (*Ovis canadensis*), and moose (*Alces alces*). Mule deer are common throughout the study area, while elk and moose are more common in the Montana portion of the study area and pronghorn are more common in the Idaho portion of the study area. Critical winter range for elk and bighorn sheep occur in Montana. A variety of small mammal species, including coyote (*Canis latrans*), red fox (*Vulpes vulpes*), bobcat (*Lynx rufus*), skunk (*Mephitis mephitis*), raccoon (*Procyon lotor*), black-tailed jackrabbit (*Lepus californicus*) and various bats and small rodents, are widespread in the study area. A diverse array of passerine and raptor species also occur in the area, many of which are designated as sensitive by the BLM. High quality habitat for the greater sage-grouse (*Centrocercus urophasianus*) occurs throughout the study area. There are also several important colonial shorebird/waterfowl nesting areas in both Montana and Idaho. A number of special status animal species are known to occur or have the potential to occur within the study area. These include federally listed species as well species designated as sensitive by the BLM, USFS, and States. These special status wildlife species are listed in Table 3.5-2.

Several federally listed species are known to occur in the study area. These include the Arctic grayling (*Thymallus arcticus*), bald eagle (*Haliaeetus leucocephalus*), bull trout *(Salvelinus confluentus*), Canada lynx (*Lynx Canadensis*), gray wolf (*Canis lupus*), and grizzly bear (*Ursus arctos horribilis*). While the Canada lynx, gray wolf, and grizzly bear have been observed in the study area, specific locations for these species have not been included in the biological resources inventory or sensitivity analysis. The gray wolf occurs throughout the study area, and there are no "important" wolf habitats that would affect the routing of a transmission line. There have been observations of Canada lynx and grizzly bear in the study area, particularly along the Centennial Mountains on the Targhee National Forest. This area has been identified as important corridor for a number of sensitive wildlife species. However, neither the Canada lynx nor the grizzly bear have established populations within the study area. There are no Lynx Analysis Units within study area, and it was recently determined that none of the potential lynx habitat on the Beaverhead-Deerlodge National Forest is occupied (Art Rohrbacher, Wildlife Program Manager- Beaverhead-Deerlodge National Forest, personal communication). The Centennial Mountains east of I-15 and the Gravelly Mountains contain suitable grizzly bear habitat (50CFR69854) and portions of the study area in the vicinity of Henry's Lake and are located within the species Primary Conservation Area (USFWS 1993). However, the grizzly bear is a highly mobile species and there are no "critical" habitats or

management guidelines that would affect the routing of a transmission line. Therefore, this document does not include sensitivity ratings relating to the Canada lynx, gray wolf, and grizzly bear.

Table 3.5-2 Special Status Animal Species that Occur in the Study Area

Common Name	Scientific Name	Status[1]	Montana	Idaho
Arctic Grayling	*Thymallus arcticus*	C	●	
Bald Eagle	*Haliaeetus leucocephalus*	T	●	●
Bull Trout	*Salvelinus confluentus*	T	●	
Canada Lynx	*Lynx canadensis*	T	●	●
Gray Wolf	*Canis lupus*	X	●	●
Grizzly Bear	*Ursus arctos horribilis*	T	●	●
Warm Spring Zaitzevian Riffle Beetle	*Zaitzevia thermae*	C	●	
Yellow-billed Cuckoo	*Coccyzus americanus*	C		●
Greater Short-Horned Lizard	*Phrynosoma hernandesi*	BLM	●	●
Milk Snake	*Lampropeltis triangulum*	BLM	●	●
Northern Leopard Frog	*Rana pipiens*	BLM, R1	●	●
Plains Spadefoot	*Spea bombifrons*	BLM	●	●
Snapping Turtle	*Chelydra serpentine*	BLM	●	●
Western Hog-Nosed Snake	*Heterodon nasicus*	BLM	●	●
Yellowstone Cutthroat Trout	*Onchorhynchus clarki bouvieri*	BLM	●	●
Townsend's Big-eared Bat	*Corynorhinus townsendii*	BLM, R1, R4	●	●
Spotted Bat	*Euderma maculatum*	BLM, R4	●	●
Fringed Myotis	*Myotis thysanodes*	BLM	●	●
Fringed-tailed Myotis	*Myotis thysanodes pahasapensis*	BLM	●	●
Long-legged Myotis	*Myotis volans*	BLM	●	●
Long-eared Myotis	*Myotis evotis*	BLM	●	●
Northern Myotis	*Myotis septentrionalis*	BLM	●	●
Pallid Bat	*Antozous pallidus*	BLM	●	●
Wolverine	*Gulo gulo*	BLM, R1, R4	●	●
Black-tailed Prairie Dog	*Cynomys ludovicianus*	BLM	●	●
Pygmy Rabbit	*Brachylagus idahoensis*	BLM, R1	●	●
Swift Fox	*Vulpes velox*	BLM	●	●
Western Spotted Skunk	*Spilogale gracilis*	BLM	●	●
Black Tern	*Chilodonias niger*	BLM	●	●
Burrowing Owl	*Athene/Speotyto cunicularia*	BLM	●	●
Common Loon	*Gavia immer*	BLM, R4	●	●
Ferruginous Hawk	*Buteo regalis*	BLM	●	●
Fisher	*Martes pennanti*	BLM, R1, R4	●	●
Franklin's Gull	*Larus pipixcan*	BLM	●	●
Flammulated Owl	*Otus flammeolus*	BLM, R1, R4	●	●
Dickcissel	*Spiza americana*	BLM	●	●
Golden Eagle	*Aquila chrysaetos*	BLM	●	●
Great Gray Owl	*Strix nebulosa*	BLM, R4	●	●
Greater Sage-Grouse	*Centrocercus urophasianus*	BLM, R1	●	●
Harlequin Duck	*Histrionicus histrionicus*	BLM, R1	●	●
Loggerhead Shrike	*Lanius ludovicianus*	BLM	●	●
Long-billed Curlew	*Numenius americanus*	BLM	●	●

Common Name	Scientific Name	Status[1]	Montana	Idaho
Chestnut-collared Longspur	*Calcarius ornatus*	BLM	●	●
McCown's Longspur	*Calcarius mccownii*	BLM	●	●
Marbled Godwit	*Limosa fedoa*	BLM	●	●
Mountain Plover	*Charadrius montanus*	BLM	●	●
Northern Goshawk	*Accipiter gentiles*	BLM, R1, R4	●	●
Peregrine Falcon	*Falco peregrinus*	BLM, R1	●	●
Sage Thrasher	*Oreoscoptes montanus*	BLM	●	●
Baird's Sparrow	*Ammodramus bairdii*	BLM	●	●
Brewer's Sparrow	*Spizella breweri*	BLM	●	●
LeConte's Sparrow	*Ammodramus leconteii*	BLM	●	●
Sage Sparrow	*Amphispiza belli*	BLM	●	●
Sprague's Pipit	*Anthus spragueii*	BLM	●	●
Swainson's Hawk	*Buteo swainsonii*	BLM	●	●
Trumpeter Swan	*Cygnus buccinator*	BLM, R1	●	●
White-faced Ibis	*Plegadis chihi*	BLM	●	●
Willet	*Cataptrophorus semipalmatus*	BLM	●	●
Wilson's Phalarope	*Phalaropus tricolor*	BLM	●	●
Black-backed Woodpecker	*Picoides arcticus*	BLM, R1	●	●
Three-toed Woodpecker	*Picoides tridactylus*	BLM, R4	●	●
Red-headed Woodpecker	*Melanerpes erythrocephalus*	BLM	●	●
Yellow Rail	*Coturnicops noveboracensis*	BLM	●	●
American White Pelican	*Pelecanus erythrorhynchos*	BLM	●	●
Shoshone Sculpin	*Cottus greenei*	BLM		●
Wood River Sculpin	*Cottus leiopomus*	BLM, R4		●
Idaho Point-headed Grasshopper	*Acrolophitus pulchellus*	BLM		●
St. Anthony Sand Dunes Tiger Beetle	*Cicindela arenicola*	BLM		●
Blind Cave Leiodid Beetle	*Glacicavicola bathyscoides*	BLM		●
Prairie Falcon	*Falco mexicanus*	BLM	●	●
Calliope Hummingbird	*Stellula calliope*	BLM	●	●
Lewis's Woodpecker	*Melanerpes lewis*	BLM	●	●
Williamsons Sapsucker	*Sphyrapicus throideus*	BLM	●	●
Willow Flycatcher	*Empidonax trailii*	BLM	●	●
Hammond's Flycatcher	*Empidonax hammondii*	BLM	●	●
Olive-sided Flycatcher	*Contopus borealis*	BLM	●	●
Common Garter Snake	*Thamnophis sirtalis*	BLM	●	●
Western Toad	*Bufo boreas*	BLM, R1	●	●
Woodhouse Toad	*Bufo woodhousii*	BLM	●	●
Northern Bog Lemming	*Synaptomys borealis*	R1	●	●
Great Basin Pocket Mouse	*Perognathus parvus*	R1	●	●
White-headed Woodpecker	*Picoides albolarvatus*	R4	●	●
Boreal Owl	*Aegolius funereus*	R4	●	●
Columbian Sharp-tailed Grouse	*Tympanuchus phasianellus columbianus*	R4	●	●
Spotted Frog	*Rana luteiventris*	R4		●

[1] Status: E= Federally Endangered; T= Federally Threatened; X= Federally Experimental; C= Federally Candidate; BLM= BLM Sensitive; R1=U.S. Forest Service Region 1 Sensitive Species; R4= U.S. Forest Service Region 4 Sensitive Species

Legal Statutes and Policies

The applicable Federal and State laws, regulations, and administrative designations relative to plant and wildlife species and their habitats in the study area are summarized below.

Endangered Species Act (7 U.S.C. 136; 16 U.S.C. 460 et seq.)

The Endangered Species Act (ESA) provides for the conservation of threatened and endangered plants and animals and the habitats in which they are found. The Act is implemented by two federal agencies, the U.S. Fish and Wildlife Service (USFWS) and National Oceanic and Atmospheric Administration Fisheries (NOAA Fisheries), which have the ability to officially list plant and animal species as "endangered" or "threatened." Section 7 of the ESA imposes an affirmative duty on federal agencies to ensure that their actions (including permitting) are not likely to jeopardize the continued existence of a listed species or result in the destruction or modification of their habitat.

Migratory Bird Treaty Act (16 U.S.C. 703)

The Migratory Bird Treaty Act (MBTA) makes it illegal for anyone to take, possess, import, export, transport, sell, purchase, barter, or offer for sale, purchase, or barter, any migratory bird, or the parts, nests, or eggs of such a bird, except under the terms of a valid permit issued by the USFWS.

The Bald and Golden Eagle Protection Act (16 CFR 668)

The Bald and Golden Eagle Protection Act (BGEPA) prohibits any form of possession or taking of both bald and golden eagles. The statute imposes criminal and civil sanctions as well as an enhanced penalty provision for subsequent offenses.

Montana- Fish and Wildlife

Title 87 of the Montana Code Annotated directs the Fish, Wildlife & Parks Commission to set the policies for the protection, preservation, management, and propagation of the wildlife, fish, game, furbearers, waterfowl, nongame species, and endangered species of the state.

Idaho Statutes- Fish and Game

Title 36 of the Idaho Statutes directs the Fish and Game Commission to preserve, protect, perpetuate, and manage all wildlife, including all wild animals, wild birds, and fish, within the State of Idaho.

BLM Sensitive Species

BLM Special Status Species Management 6840 establishes policy for the management and conservation of sensitive plant and animal species, and the ecosystems upon which they depend. Policy 6840 gives the State Director the responsibility of designating BLM sensitive species.

Forest Sensitive Species

Section 2670 of the Forest Service Manual delegates designation of sensitive species to each Regional Forester. Sensitive species are defined as "Those plant and animal species identified by a Regional Forester for which population viability is a concern, as evidenced by a significant current or predicted downward trends in population numbers or density, or significant current or predicted downward trends in habitat capability that would reduce a species' existing distribution."

Montana

Vegetation within the Montana portion of the study area is comprised of a mosaic of various plant communities. Exhibit 5 identifies the primary habitat types within the study area as derived from GAP data (Redmond et al. 1998). The northwestern portion of the study area is dominated by conifer and broadleaf forests with sagebrush steppe, grasslands and agriculture occurring in the valleys. The northeastern portion of the study area is comprised primarily of agriculture and grassland communities. Sagebrush steppe and grasslands dominate the southwestern portion of the study area, intermixed with fingers of conifer and broadleaf forests and a small amount of alpine meadow communities. The southeastern portion of the study area is comprised of a mosaic of conifer and broadleaf forests, alpine meadows, grasslands and shrublands.

Sixty-five BLM and Forest Service special status plant species occur within the Montana portion of the study area (Table 3.5-1). One federally listed plant, the Ute ladies' tresses, is known to occur within this portion of the study area (Exhibit 6). Known populations of Ute ladies' tresses occur near the Jefferson River (2 populations), the Beaverhead River (1 population), the Ruby River (1 population), and near Three Forks, Montana (2 populations).

A diversity of wildlife species occur in the Montana portion of the study area as a result of the varied habitat types in this area including Montane forest, sagebrush steppe, mixed-grass prairie, and riparian habitats. Sensitive habitats within the Idaho portion of the study area include cottonwood gallery forests along all the major rivers that support bald eagle nests and great blue heron rookeries, the Centennial Valley area that represents important nesting habitat for the trumpeter swan and numerous waterfowl species, sagebrush communities that provide high quality habitat for the greater sage-grouse, and the Centennial Mountains that represent a movement corridor of Canada lynx and grizzly bears and habitat for sensitive species (i.e., northern goshawk and peregrine falcon).

The following presents brief descriptions of the important wildlife resources within the study area that are shown in Exhibit 6.

Bald eagle nests – Bald eagle nests are located along major rivers and lakes throughout the Montana portion of the study area, including the Gallatin, Madison, Jefferson, Missouri, Clark Fork, Big Hole, Ruby, and Beaverhead Rivers. The highest concentrations of bald eagle nests occur along the Madison River (between Ennis Lake and Henry's Lake) and along the lower Big Hole River.

Bull trout critical habitat – Federally designated critical habitat for the bull trout within the study area includes a portion of the Clark Fork River and some tributaries northwest of Butte, Montana.

Great blue heron rookeries – Great blue heron rookeries occur along major rivers throughout the study area including the Gallatin, Jefferson, Big Hole, and Ruby Rivers. There is also a rookery on Willow Creek near Harrison, Montana.

Greater sage-grouse leks – Concentrations of greater sage-grouse leks occur along the eastern study area boundary (northeast of Bozeman), in upper portions of the Big Hole River valley, and west/southwest of Dillon, Montana.

Greater sage-grouse key habitat – Key habitat for the greater sage-grouse closely matches the lek concentration areas including the eastern study area boundary (northeast of Bozeman), upper portions of the Big Hole River valley, and south and west of Dillon, Montana.

Sharp-tailed grouse key habitat – Key habitat for the sharp-tailed grouse occurs in the grasslands east of Three Forks, Montana and north of Whitehall, Montana.

Northern goshawk nests – Large concentrations of northern goshawk nests occur in the Pioneer Mountains and Beaverhead Mountains (western portion of the study area). There are also known goshawk nests in the Bridger Mountains, northeast of Ennis lake, Gravelly Mountains north of Lima Reservoir, and in the vicinity of Butte, Montana.

Peregrine falcon nests – Peregrine falcon nests are concentrated in the lower Big Hole River valley and along the northern edge of the Centennial Mountains. There is also one nest located northwest of Henry's Lake.

Raptor Management Area – The Dillon Resource Management Plan designates three areas in the Lima Foothills and the Sweetwater Breaks as key raptor management areas (BLM 2006*a*). These areas represent important nesting habitat for nine species of raptors, including the ferruginous hawk (BLM sensitive species). The Raptor Management Area supports one of the highest densities of nesting ferruginous hawks in North America. The Dillon RMP prohibits surface disturbances that would alter physical structures utilized by nesting ferruginous hawks within this area.

Trumpeter swan habitat – The Centennial Valley (Lima Reservoir and Red Rock Lakes) represents one of the two breeding areas for the Rocky Mountain Population of trumpeter swan (MFWP 2006). Red Rock Lakes NWR was specifically created to protect trumpeter swan breeding habitat. Trumpeter swan winter range includes the Red Rock Lakes area, Ennis Lake, and 15 miles of the Madison River upstream from Ennis Lake.

Centennial Valley Wetland and Waterfowl Production Area – The Dillon Resource Management Plan designates a portion of the Centennial Valley as a Waterfowl Production Area (BLM 2006*a*). The RMP directs the BLM to manage this area to benefit trumpeter swans and other waterfowl and to allow no net loss of wetland habitats.

Mountain plover breeding/nesting habitat – There are several known Mountain plover breeding and nesting sites located in Jefferson County south of Boulder, Montana.

Townsend's big-eared bat roosts and hibernacula – There are several Townsend's big-eared bat roosts and hibernacula throughout the Montana portion of the study area. Concentration areas include the Lewis and Clark Caverns State Park area, the hills east of Twin Bridges, Montana, and the hills east and northeast of Melrose, Montana.

Crucial/critical elk and bighorn sheep winter range – Several small areas of critical elk winter range occur along the northern study area boundary in the vicinity of Boulder and Butte. Critical bighorn sheep winter range occurs in the Highland Mountains near Melrose, Montana and in the Tendoy Mountains west of Dell, Montana.

Idaho

The Idaho portion of the study area is dominated by sagebrush steppe interspersed with grasslands, agriculture, and vegetated and unvegetated lava fields. Exhibit 7 identifies the primary habitat types within the study area as derived from GAP data (Scott et al. 2002). Riparian and wetland communities are scattered throughout the area. Riparian habitats occur along the edges of lakes, ponds, reservoirs, rivers, and streams. A large broadleaf riparian and shrub wetland community occurs along the Snake River and

American Falls Reservoir. A small amount of xeric and mesic shrublands occur in the northern portion of the study area.

Thirty-nine BLM and Forest Service sensitive plant species are known to occur within or in the vicinity of the study area (Table 3.5-1). These sensitive plants occur throughout the study area, but primarily occur within the sagebrush shrublands in the northwestern and southern portions of the study area. One federally listed plant, the Ute ladies' tresses, occurs within the Idaho portion of the study area. Two populations of Ute ladies' tresses are known to occur along the Snake River, just outside of the eastern edge of the study area boundary.

Wildlife species in the Idaho portion of the study area are diverse. However, sage steppe species are more common given the abundance of these habitat types in the study area. Sensitive habitats within the Idaho portion of the study area include St. Anthony dunes which support a number of endemic species, marsh-wetland complexes that support large breeding colonies of colonial shorebirds (i.e., Mud Lake WMA), lava flows that contain bat hibernacula (i.e., Craters of the Moon National Monument), and high quality habitats for the greater sage-grouse and sharp-tailed grouse. It should be noted that data on greater sage-grouse lek locations was not available for inclusion in this report.

The following presents brief descriptions of the important wildlife resources within the study area that are shown in Exhibit 7.

Bald eagle nests – Bald eagle nests are located on Henry's Lake, the Henry's Fork River between Henry's Lake and Island Park, the Snake River north of Idaho Falls, and in the vicinity of Carey and Picabo, Idaho.

Yellow-billed cuckoo nests – Known nesting sites for the Yellow-billed cuckoo occur along the Snake River north of the American Falls River and along the Big Wood River near Stanton Crossing.

Greater sage-grouse key habitat – Key habitat for the greater sage-grouse is located throughout the northern part of the Idaho portion of the study area, in the vicinity of the Craters of the Moon National Monument, and northeast of Shoshone, Idaho. While lek location data were not available, it is known that the areas of key habitat do support a large number of greater sage-grouse leks.

Sharp-tailed grouse key habitat – Key habitat for the sharp-tailed grouse is located in the grasslands located north of Saint Anthony, Idaho.

Northern goshawk nests – A concentration of northern goshawk nests are located in the Centennial Mountains east of I-15 (Monida Pass).

Great gray owl nests – The great gray owl has similar habitat requirements to the northern goshawk, and the species distributions are similar. Great gray owl nests are located in the Centennial Mountains east and west of I-15 (Monida Pass).

Peregrine falcon and merlin nests – Falcon nests occur in the vicinity of Henry's Lake, Mud lake WMA, Market Lake WMA, east of Arco, Idaho, and north of Carey, Idaho.

Ferruginous hawk nests – Ferruginous hawk nests occur in suitable habitats throughout the Idaho portion of the study area. Areas that support concentrations of ferruginous hawk nests

include the Nine Mile Knoll ACEC area, the area north of Mud Lake WMA and Camas NWR, and the Idaho National Laboratory and adjacent areas.

Trumpeter swan nesting habitat –Nesting habitat for the trumpeter swan is located northwest of Island Park, northwest of the Market Lake WMA, and northwest of the Sand Creek WMA.

Colonial Waterfowl and Shorebird Breeding Areas – There are several wetland-marsh complexes that represent important nesting habitat for colonial waterbirds. These areas include Henry's Lake, Mud lake WMA, Camas NWR, Market Lake WMA, American Falls Reservoir, Magic Reservoir, and wetland complex north of Carey, Idaho. Sensitive colonial waterbird species occurring in these areas include Franklin's gull, California gull, ring-billed gull, great egret, snowy egret, Caspian tern, Forster's tern, Clark's grebe, eared grebe, red-necked grebe, white-faced ibis, double-crested cormorant, and black-crowned night-heron.

Bat roosts and hibernacula – Bat roosts and hibernacula are located throughout the Idaho portion of the study area. The specific species include Townsend's big-eared bat, western small-footed myotis, and the Yuma myotis. Concentrations of hibernacula occur in the eastern portion of the Idaho National Laboratory, Craters of the Moon National Monument, and the Mammoth Cave area north of Shoshone, Idaho.

3.5.2 Sensitivity Analysis

Montana

The Montana portion of the study area is primarily classified as low and moderate sensitivity for biological resources. The primary areas of moderate sensitivity occur in the northeastern corner of the study area (key habitats for greater sage-grouse and sharp-tailed grouse) and the southern half of the Montana portion of the study area (key greater sage-grouse habitat and the BLM Raptor Management Area). Riparian zones along major rivers are also designated as moderate sensitivity. Areas classified as high sensitivity generally occur in small patches throughout the area, and are associated with the Ute Ladies'-tresses, greater sage-grouse leks, northern goshawk nests, falcon nests, bat roosts and hibernacula, the BLM Waterfowl Production Area, and trumpeter swan habitat in the Centennial Valley and south of Ennis Lake. Bald eagle nest sites are the only biological resource classified as exclusion, and are located along most of the major rivers within the Montana portion of the study area.

Idaho

The Idaho portion of the study area is primarily classified as low sensitivity for biological resources. Several large areas of moderate sensitivity occur throughout the area, and are primarily associated with key habitats for greater sage-grouse and sharp-tailed grouse and ferruginous hawk nests. Riparian zones along major rivers are also designated as moderate sensitivity. Areas classified as high sensitivity generally occur in small patches throughout the area, and are associated with Ute Ladies'-tresses, sharp-tailed grouse leks, northern goshawk and great gray owl nests, falcon and merlin nests, bat roosts and hibernacula, colonial shorebird nesting areas, trumpeter swan nesting habitat, and yellow-billed cuckoo nesting habitat. Bald eagle nest sites are the only biological resource classified as exclusion.

Greater Yellowstone Ecosystem

The Greater Yellowstone Ecosystem (GYE) is one of the largest, substantially intact ecosystems in the lower 48 states. The region is one of the last contiguous areas where large-scale landscape processes such

as large native mammal migration, fire cycles, and predator-prey interactions take place and remain largely intact from pre-Columbian times.

Because of the unique nature of the area, the original GYE boundary it is given a Moderate Sensitivity.

3.6 WATER RESOURCES AND WETLANDS

3.6.1 Resource Inventory

Montana

Lakes/Reservoirs/Rivers

There are nine major watersheds within the Montana portion of the study area: the Beaverhead; Big Hole; Boulder; Gallatin; Jefferson; Madison; Red Rock; Ruby; and Upper Missouri (MWC 2006, MNRIS 2003). Each of these watersheds contains numerous rivers and lakes/reservoirs. The major rivers include the Beaverhead, Big Hole, Boulder, Gallatin, Jefferson, Madison, and Missouri Rivers. Major lakes and reservoirs include Whitetail Reservoir, Willow Creek Reservoir, Delmoe Lake, Ennis Lake, Harrison Lake, Ruby River Reservoir, Clark Canyon Reservoir, Lima Reservoir, and the Red Rock Lakes.

Wetlands

Wetlands occur throughout the Montana portion of the study area. Larger wetland areas are primarily associated with river riparian corridors (primarily broadleaf species) and along the periphery of lakes and reservoirs (primarily shrub and herbaceous species). Riparian wetlands occur along most of the major rivers in the study area. The only major shrub and herbaceous wetland complex is located in the Centennial Valley, and encompasses the Lima Reservoir and Red Rock Lakes NWR areas.

Idaho

Lakes/Reservoirs/Rivers

There are nine major watersheds within the Idaho portion of the study area: American Falls, Beaver-Camas, Big Wood, Birch, Idaho Falls, Little Lost, Little Wood, Medicine Lodge, and Upper Henrys (EPA 2002). Each of these watersheds contains numerous rivers and lakes/reservoirs (Exhibit 8). The major rivers include the Henry's Fork, Snake River, Big Lost River, Big Wood River, and Little Wood River. Major lakes and reservoirs include Henry's Lake, American Falls Reservoir, Magic Reservoir, and Mud Lake.

Wetlands

Wetlands occur throughout the Idaho portion of the study area (Exhibit 8). These wetlands areas are primarily associated with riparian corridors along rivers and streams and herbaceous wetland complexes along the periphery of lakes and reservoirs. Riparian wetlands occur along most of the major rivers in the study area. The most significant shrub and herbaceous wetland complexes are located in the Lemhi Valley, Sand Creek WMA, Mud Lake WMA, Market Lake WMA, Camas NWR, American Falls Reservoir, Carey Lake, and Magic Reservoir.

3.6.2 Sensitivity Analysis

Montana

The Montana portion of the study area is primarily classified as low sensitivity for water resources and wetlands (Exhibit 9). Based upon the criteria established in Chapter 2, the only other sensitivity category for water resources in the study area is moderate. The primary areas of moderate sensitivity include rivers/streams and associated floodplains and wetlands and the large wetland complex in the Centennial Valley.

Idaho

The Idaho portion of the study area is primarily classified as low sensitivity for water resources and wetlands (Exhibit 9). Based upon the criteria established in Chapter 2, the only other sensitivity category for water resources in the study area is moderate. The primary areas of moderate sensitivity include rivers/streams and associated floodplains and wetlands and wetland complexes in the Lemhi Valley, Sand Creek WMA, the Mud Lake-Camas NWR area, Market Lake WMA, American Falls Reservoir, and the areas south of Carey and Bellevue, Idaho

3.7 ENGINEERING CONSTRAINTS AND GEOHAZARDS

3.7.1 Resource Inventory

The study area encompasses portions of three unique physiographic regions; The Rocky Mountains Provinces, Columbia Plateau Provinces, and The Basin and Range Provinces. The combined areas represent a very diverse geologic environment. The regional characteristics associated with each of the three provinces reflect the geologic hazards. In other words, the incidence of landslides are a bigger issue in the Rocky Mountains Province than in the lava flats of the Columbia Plateau Province, due primarily to the steep terrain associated with the Rocky Mountains. Exposed bedrock basalt flows, can be very extensive in the Snake River plain. Expansive soils are more common in the northeast part of the study area since expansive soils are derived from rock types more common in this part of the Rocky Mountains Province. Pseudokarst is widespread in the Columbia Plateau basalts but rare in Basin and Range or Rocky Mountains.

Montana

The northeast portion of the study area lies within the Rocky Mountains Province. This region is characterized by steep and rugged mountain ranges extending from Canada to New Mexico. The majority of historic landslide activity which has occurred within the study area occurred in the Rocky Mountains Province, due, in part, to the steep terrain. Much of the region is composed of steeply dipping Precambrian and Paleozoic rock, including extensive deposits of karst limestone. Some soils derived from these rock types display more shrink-swell characteristics.

Idaho

Most of the central and southern parts of the study area are within the Columbia Plateau Province. The Columbia Plateau is the site of one of the largest deposits of volcanic rock on the planet. Much of the area is covered with Columbia River Basalt flows. Basalt bedrock outcrops are common in this area and many are quite extensive. Road construction on exposed basalt is difficult and requires extensive drilling and blasting.

Much of the Snake River Plain is considered pseudokarst due to the presence of lava tubes, columnar jointing and volcanic rifts. The topography of this region is much flatter that the other two geologic provinces and slope failure is much less of an issue. Swelling clays are present in the Snake River Plain, but they are not as prevalent as in the northeast part of the study area. Smaller areas of Basin and Range exist within the study area on both the northern and southern edge of the Snake River plain. Basin and Range is characterized by parallel, north-south trending mountain ranges bounded on either side by alluvial filled north-south trending valleys. Many of the Basin and Range mountains are steep and prone to landslides. Additionally, the north-south trending mountains create natural east-west barriers but provide good north to south access.

3.7.2 Sensitivity Analysis

Montana

Mostly due to severe slopes in mountainous areas, a significant portion of the study area in Montana has high sensitivity levels. Moderate sensitivity occurs in the eastern portion of the study area in Montana near the Townsend and Ringling substation areas, near Bozeman, in and around the Anceney area and to the south, along portions of the Madison River Valley, south of Ennis Lake, in the valley areas near Harrison, in the Ruby River Valley, and the Upper and Lower Red Rock Lakes area. Opportunities for transmission line siting typically occur in the valley areas (see Exhibit 8).

Idaho

High sensitivity areas in Idaho are limited to Continental Divide mountainous area and in the Sawtooth Mountains northwest of Crater's of the Moon National Monument. Moderate sensitivity occurs in large, contiguous areas within the Snake River Plain as a result of exposed volcanic bedrock areas.